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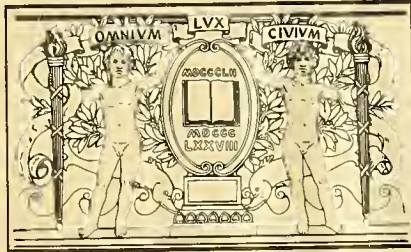
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BOSTON'S SCENIC CORRIDOR

The Parkland of the Muddy River
and the Charles River Basin

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Roy Mann, Landscape Architect

January 1963

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FOREWORD

In 1965 the United States Army Corps of Engineers was requested by the Committee on Public Works of the House of Representatives of the United States to study the Charles River Watershed, which includes the Muddy River, "with a view to determining the advisability of improvements in the interest of flood control, water supply, recreation, water quality control, navigation, tidal flood control, allied purposes and related land resources." Thirty-five cities and towns are wholly or partially within the watershed; sixteen Federal and State agencies have been assigned responsibility for portions of the study; and the work is planned to require four and a half years. It is expected, therefore, that the results of the study will be at least as important as the work of the great landscape architects of the late nineteenth century whose art is visible in the Charles River Basin and the park system that runs from Jamaica Pond to Charlesgate.

The Planning Department of the Boston Redevelopment Authority initiated its own study of the Charles River Basin, the Muddy River, and the Fens in April, 1967, in order to contribute to the planning effort that will be made under the auspices of the Corps. The concerns of this report are both more limited and more detailed than those of the Corps's work because they are primarily the concerns of the City of Boston, but it is hoped that they will be of value to the entire metropolitan community. The purpose of the BRA study has been to evaluate the open-space and recreation assets and potentials of the river-park system and to recommend a comprehensive program for action to the City of Boston, its neighbors, and the metropolitan community.

The Redevelopment Authority is of course aware that the two streams flow along its boundaries with its neighbors and that there are metropolitan jurisdictions that are charged with some of the responsibilities for the park areas that it is studying. The Charles and the Muddy, however, are not divisible into isolated segments of park and water. Neither are the problems of the lower Charles Basin separable from the problems of the entire watershed. The recommendations, therefore, extend to many aspects of the common river-park system, and their implementation will require the cooperation of many different jurisdictions.

The City of Boston Parks and Recreation Department owns and administers the parkland around Jamaica Pond, along the east side of the Muddy as far as Park Drive, and from there through the Fens to the Massachusetts Turnpike. The Brookline Park Department has responsibility for the part of the Muddy River parkland within Brookline, on the west side of the river from Park Drive southward to the point opposite Ward's Pond where the Boston-Brookline boundary turns westward.

From the Massachusetts Turnpike to the Charles the Fens is under the jurisdiction of the Metropolitan District Commission. The MDC also holds title to the park roads but, except under specific legislative authorization, has no continuing responsibility for maintenance of the waterways.

The MDC owns and administers the parkland and undeveloped shore areas and roads along the Charles River Basin in Boston, Cambridge, Watertown, and Newton. Presently, the sole exception to clear title is the Watertown Arsenal shore, where the MDC possesses a "care and control" easement over a narrow strip of shoreline. The MDC owns the Charles River Dam, leasing land to the Museum of Science. Other leases have been given to boat clubs, to VFW and American Legion posts, and to cultural organizations.

This study of Boston's Scenic Corridor has been conducted with reference to a considerable amount of very able work that has been done in the past. The following material has been of particular importance in policy formulation:

Study and Recommended Program of Development of Parks and Reservations and Recreational Facilities of the Metropolitan Parks District, prepared in 1956 by Edwards, Kelcey and Beck for the Parks Division of the Metropolitan District Commission.

An Inventory and Plan for Development of the Natural Resources of Massachusetts, Part II: Public Outdoor Recreation, prepared by Edwards, Kelcey and Beck for the Department of Natural Resources in 1957 and revised and updated by the Department in 1966.

North Terminal Area Study; Boston, Cambridge, and Somerville, Massachusetts: A Comprehensive Plan of Transportation Facilities and Related Land Development, prepared for the North Terminal Area Policy Committee by Barton-Aschman Associates and others in 1962.

Open Space and Recreation Study for the Boston Region, prepared by the Metropolitan Area Planning Council in 1965.

The Mystic, Charles and Neponset Rivers, draft prepared by the Metropolitan Area Planning Council in 1967.

This report follows the call of THE 1965/1975 GENERAL PLAN FOR THE CITY OF BOSTON AND THE REGIONAL CORE that "the fullest possible use be made of Boston's recreational assets." Other planning projects of the BRA, including both an open space study and a North End recreation study that are currently being prepared, and the General Neighborhood Renewal Plans and other urban renewal planning studies for areas contiguous to the Charles and the Muddy, have served as sources of information and will, in turn, benefit from the findings of this report.

Many people in many different agencies have given generous assistance to the preparation of this report, and their help is gratefully acknowledged.

Special mention should be made of the help given by staff members of the Corps of Engineers, the MDC, the MAPC, and the Boston Parks and Recreation Department.

CHAPTER I--THE SCENIC CORRIDOR TODAY

"The work of the elder Frederick Law Olmsted and Charles Eliot may well be considered the foundation to a beautiful city with unusual opportunities for outdoor recreation. The vision and power to design with which these men shaped the landscape for the age of the horse and the carriage is now needed in shaping the metropolis of the future!"

from the First Prize Program, The Boston Contest, 1944.

For about a century, Boston has been a metropolitan city, the urban center of a large, highly populated area--crowded, bustling, creative. Within recent years, the metropolitan area has experienced the beginning of a rapid climb in population growth, expected to reach 5.5 million by the year 2000. Boston, the regional core, has undergone an unprecedented program of urban redevelopment and improvements, which will extend well into the future.

At this point in time, with major urban programs in planning or under way and an important target date for civic improvements, the celebration in 1975 and 1976 of the bicentennial of American independence, only a short time off, there is an urgent need to appraise one of the most important environmental assets of Boston and the metropolitan area--the Charles River Basin and the river parkland of the Muddy and the Fens.

During the century that Boston has been growing as a metropolis, the waters, parklands, and recreational open spaces of the Charles and the Muddy--within the very heartland of the metropolitan area--have been gradually acquired and improved. With the future growth anticipated for Boston, the Charles and the Muddy will become correspondingly more important. A revitalized and strengthened river parkland system in Boston and its region of tomorrow is essential.

The Charles and the Muddy, together with the green parklands within which they flow and the scenic natural, architectural, and historic areas along their borders, form two arms of the most important scenic corridor in eastern Massachusetts and one of the most significant in New England and the nation. One arm, the Charles River Basin from Charles River Dam to Watertown Dam, is the most vivid landmark in the city. Views across the Basin--of the Boston skyline, of Harvard College, of the Perkins Institute tower--not only give pleasure to hundreds of thousands of people but are the means by which they orient themselves with their surroundings. The other arm, the Fens and the Muddy River, has a more intimate scale--a meandering creek bordered by seemingly wild areas, providing refreshing contrast for the visitor, who feels himself protected within it from the urban life surrounding him.

Although the Fens and the Muddy together form a single arm of the Scenic Corridor, they are in fact two virtually separate bodies of water. When Frederick Law Olmsted created the Fens eighty years ago, it was a tidal basin receiving fresh flows of sea water twice daily, occasionally flooded by the overflow from Stony Brook. Olmsted's plan required the diversion of the Muddy to the Charles under Brookline Avenue, but his design of the park simulated a connection between the two bodies of water, a connection that exists only during storms, when gates are opened to permit overflow from the Muddy to pass into the Fens. The connection, however, even though simulated, was an important part of the original design of the Boston park system, greatly increasing the value of each element. The subsequent break in the parkland that was the result of construction of a parking lot, by its very ugliness and by effectively barring pedestrian movement between the two sections, is perhaps the best demonstration of the importance of continuity. (Throughout this report the Fens is included when the Muddy is referred to except when the context makes a distinction clear.)

The significance of the Scenic Corridor lies both in its aspect as urban parkland and in its aspect as a corridor enclosing waterways.

The Scenic Corridor embraces and conserves two natural streams in the heart of the metropolitan area. Urbanites are refreshed by contact with unspoiled nature, and this contact is especially meaningful where major natural features are involved. The characteristics of open and moving water make rivers the most sought-after and valuable of natural features. The Scenic Corridor is in the center of the Boston region, where it is needed the most by a dense urban population for relaxation, recreation, and general enjoyment.

The Scenic Corridor consists of major recreational waters, parklands, and open space along the shores that are almost entirely under park agency ownership. Few areas, albeit important ones, must be acquired or developed to complete the public parklands along the river. Public funds can be spent wisely and efficiently in filling these gaps.

The Scenic Corridor possesses thirty miles of continuous pathways for the use of pedestrians and cyclists and is traversed by scenic parkways that serve large numbers of commuters, sightseers, and pleasure travelers. Continuity insures the greatest possible benefit to the public in park and recreation facilities strung out along a common shoreline, by making all facilities highly accessible and expenditures for new facilities or improvements more effective. Psychological value is added by continuity because of the major dimensions of the parkland and because options for combinations of recreation opportunities become more numerous, thus enhancing both the civic image and the individual's sense of personal expression in the city. Finally, there is a reinforcement of the human scale in continuous paths that are free from interference from vehicular traffic and urban commotion, and at the same time,

there is a favorable reinforcement of the experience of driving on the Corridor's scenic parkways when they are similarly protected from cross-interference. Both the park user and the parkway driver are important, and both can be served by preservation and enhancement of abundant and continuous river parkland between parkway and shoreline.

The Scenic Corridor is the physical centerpiece of the region, framing the edges of the Boston core and giving form to continuing urban development along its borders. Land values and assessments have been sustained in bordering areas at higher levels than in more remoted locations, an effect of the view of the open parkland and of pedestrian accessibility to it, but such major open space is most important in a city-wide and metropolitan sense, endowing the entire community with aesthetic, recreational, and civic benefits.

The Scenic Corridor is continuous with other major open spaces in the metropolitan region--with the Charles River Valley upstream of Watertown and with Boston Harbor and Massachusetts Bay below the estuary, the most important group in the dwindling reserves of the open space in the Boston region. Public action in enhancing the Charles River Basin and the Muddy River should be mutually reinforced with similar actions in the Valley and in the Bay. As the market mechanisms that are at the heart of urbanization consume more and more space, this group, and especially the Scenic Corridor, will become ever more valuable and deserving of protection.

In describing the Scenic Corridor, three tiers or zones can be distinguished, each roughly parallel with the streams: the river parkland, the urban edge, and the skyline zone.

1. The River Parkland--Including the streams themselves, the shores, and

the bordering parkways, the river parkland is the heart of the Corridor. Most of the area of this zone is actual parkland in public ownership, some sections are undeveloped shores in park agency ownership, and two sections are industrial shorelines that have parkland potential. The river parkland has been abused by the pollution of its streams, by road construction that has encroached upon and consumed large areas of parkland, by misuse of park and recreation potential on land and water, and by public apathy and neglect.

2. The Urban Edge--In the center of Boston's rapidly urbanizing metropolitan region, the entire edge fronting on the borders of the parkland is considered urban, even though much of it includes institutional open space and native hillsides. The urban edge has been disfigured in some places by inappropriate land use. Incompatible industrial and commercial uses and, in some instances, residential and institutional projects endanger the valuable environmental assets of the Corridor. The fate of both natural features and developed frontages within the urban edge will be important in determining whether the valuable qualities of the inner zone, the river parkland, will persist or be diminished.

3. The Skyline Zone--At various distances beyond the actual urban edge that fronts on the river parkland, the landmarks and horizons of Boston's dynamic core, which will in time be joined by the skylines of its neighbors, constitute the third major scenic element in the Corridor. Since the skyline is not a fixed feature, the skyline zone can only be roughly identified as the area enclosing landmark buildings that can be clearly perceived from major points along the river parkland. The Boston skyline is clearly seen from the edges of the Charles as from no other point in the metropolitan area, a panorama of great value. The greatest threat to the skyline zone, in terms of its

value to the Scenic Corridor, is an uncontrolled development pattern along the urban edge that would reduce the skyline's visibility. The best answer to this danger is the development of better controls and guidelines over the urban edge to prevent its becoming a barrier to the panoramic view.

The river parkland is the key zone of the Scenic Corridor. It has within it many varied elements. Brief description of the basic environmental assets of the parkland is given below.

The Streams and Ponds

The Charles River Basin extends eight and a half miles between Watertown Dam and Charles River Dam. The river itself rises in Echo Pond near Hopkinton, winding seventy-one miles to Boston Harbor. Charles River Dam lies nearly a mile above the mouth. The river's watershed covers 300 square miles, whereas the Basin between the two dams covers 562 acres, exclusive of Broad and Lechmere canals. The river channel in the North Terminal Area, between Charles River Dam and the Harbor, may in the future become part of the Basin as a result of construction of a new dam.

The water of the Basin is severely polluted by sewage overflows, domestic and industrial wastes originating upstream, oil drainage from railroad and trucking yards, salt-water intrusions through the lock and sluice of Charles River Dam, and the thermal effluents of power plants.

The Basin is nevertheless a prime recreational and aesthetic asset of the Boston area, supporting twenty boating facilities and more than eight hundred craft. It once also served as a popular resource for swimming and fishing.

The Muddy River rises in Ward's Pond, fed mainly by seepage springs from the waters of Jamaica Pond twenty feet higher than Ward's, and by other springs and Brookline Brook in the vicinity of Leverett Pond. It flows above ground as far as Park Drive and through conduits from there under Brookline Avenue to the Charles River. During storms gates are opened into the Fens, permitting excess water to flow to the Charles that way. Sewer overflows along the Muddy River in both Boston and Brookline contribute to the pollution of the Muddy, which is aggravated by the low flow of the stream.

The Fens is an independent body of water with a drainage area of one square mile, augmented in time of storm by overflows from the Muddy River and Stony Brook. The problem of pollution introduced from these sources is exacerbated by stagnation: when the Charles River Basin was created, no provision was made for adequate circulation of the water in the Fens, although up until that time the tides had flowed through it twice daily.

Jamaica Pond is a popular fishing and boating resource. It is the only water body in the Charles-Muddy system that is presently free from pollution.

The Islands

There are five small islands along the Muddy River, some easily accessible. There is one in the Charles River Basin, Sunrise Island in Watertown, with an area of roughly four acres.

The Shores

Total parkland in public ownership along the Charles and Muddy amounts to 660 acres (including gross area of park and recreation lands, but not roads

and water bodies*). The MDC holds title to roughly 173 acres along the Charles in Boston and 179 acres in Cambridge, Newton, and Watertown. The City of Boston holds title to 229 acres, and the Town of Brookline 79 acres, along the Muddy. Below the Charles River Dam, along the shores of the North Terminal Area waterfront, former tidelands are held by various public and private owners.

Nonantum--This area is the most rustic and tranquil section of the Basin. Willows and other tree species border the shores, which slope up to the Watertown bluff on the north shore and to the Newton and Faneuil ridges on the south. Because of the narrowness of the stream, the water is generally placid and reflective. Two powerboat clubs are located in this area. Sunrise Island is covered with gray birch and scrub and lies close to the Watertown shore. Modest park areas have been developed on the Watertown shore. On the Nonantum Road shore, intensive recreation facilities, including a skating rink, playfields, and a launching ramp, have been developed. The roadside trees on both Nonantum Road and Greenough Boulevard are particularly attractive.

Arsenal--The narrowest section of the Basin and almost a mile long, this part of the Charles is dominated by the Watertown Arsenal on the slope of the bluff, with its massive buildings and wooded edges. On the Boston shore, once the site of the Brighton abattoir, the land is blighted and open, without paths.

Soldiers Field Road--The parkland along Soldiers Field Road faces the rolling hillsides on the opposite shore where the Cambridge and Mount Auburn

* Refer to Table , Charles River Basin-Muddy River Park Inventory, page .

Cemeteries have preserved attractive open-space qualities. On the Soldiers Field Road side beautiful groups of willows are spread over open grassland. Picnic areas and a playground are extremely popular, even in early spring and late fall. The former artificial mound, constructed for an arts center theater, will be leveled in the near future. Some areas are still undeveloped for park and recreation use and represent an unused potential. On the Cambridge shore the remnant of an interesting wetland, called Hell's Half-acre, still supports nesting birds and other wildlife.

Harvard--The University dominates the urban edge of the tight turns of the Charles in this area. The Harvard Houses and spires, as well as the towers of its new architecture, represent an important scenic asset. The famed sycamores along Memorial Drive are also an important element. There are no shore sections in this area that have not been given landscape treatment. The shores are heavily used by students and visitors for general relaxation, informal sport, and special gatherings such as the annual Kite Flight. Five boat-houses, including two owned by Harvard, are found in this area. The Kennedy Memorial Library is to be constructed in the near future near Lars Anderson Bridge.

Magazine Beach--Except for Magazine Beach itself, this area of commercial and industrial edges has lost much of its natural attractiveness. The trees have disappeared from the Turnpike and tandem trailer depot edges, while on the Cambridge side, the Memorial Drive tree rows are thin, dominated by the commercial roadside facilities on the urban edge beyond. The shore edge of Storrow Drive is not presently suitable for pedestrian or bicycle passage. Magazine Beach itself is an important park and recreation resource, including playfields, picnic area, a launching area, a swimming pool, attractive wooded

grassland, and on its upstream edge, the Riverside Boathouse. Magazine Beach, because of its substantial area and convenient location, has greater recreation potential than is presently used.

The Lower Basin--The centerpiece of the Boston region, the Basin's broad waters represent a unique aesthetic resource. Whether reflecting the setting sun or the night illuminations of the city, the Charles provides visual satisfactions that counter the misfortunes of its pollution. The parklands of the Embankment and Charlesbank on the Boston shore are the most popular of the core area. They are a focal point for a great variety of recreational activities, from bench-sitting and sunbathing to the Boston Pops Concerts at the Hatch Shell. Three small playgrounds exist on the Embankment, and playfields, a swimming pool, and tennis courts at Charlesbank. Accessibility to these facilities across Storrow Drive has been partly improved by pedestrian overpasses. In contrast, the Embankment at the edge of Memorial Drive in Cambridge is minimal. Paths are numerous on both embankments but are not well-linked with other park and recreation areas upstream or downstream. The urban edge is dominated by MIT on the Cambridge shore and by Boston University, Back Bay and Beacon Hill on the Boston shore, with the skyline of downtown Boston revealed behind. The Museum of Science is situated on Charles River Dam at the Basin's lowest edge. A great number of people use the outstanding boating and sailing facilities of the Basin each year.

The Estuary--The Estuary, the North Terminal Area waterfront, is immediately downstream of the Basin. The North Terminal Area is a transportation, warehousing, and industrial area, and the Boston and Maine Railroad dominates both shores at present. Actual waterfront uses such as shipping have disap-

peared, and some obsolete and derelict structures remain. Aesthetically this is a poor area, but the potential both for new development and for the recapture of the shores for use as public embankments is great.

Charlesgate--From the beginning of its history as a park corridor between the Fens and the Charles Basin, Charlesgate has been dominated by the transportation arteries that border and traverse it. The landscaped small park areas within and the picturesque, moderately-scaled building facades along its edges are valuable scenic assets. Equally important is the linkage between the Fens and the Charles, the potential of which, as a safe and attractive streamside path, has yet to be realized.

The Fens--The Fens is a unique park area in the metropolitan region. It was designed, some years before the Charles River Dam and Basin were created, as a saltwater marsh to serve both as parkland and for flood-storage. At present it constitutes a partly wild, reed-edged park area, highly popular for its informal park characteristics, in the heart of an important institutional area at the edge of the Boston core. Two small playgrounds and a large playfield are used, but are not as sought after as the scenic natural areas suitable for general relaxation.

The Fens Neck--A narrow parkland link between the Fens and the Muddy River, the Neck possesses abundant tree plantings and is considered an environmental advantage by institutions and residents of the surrounding areas, even though the open water and the parkland itself have been covered and dismembered by a parking lot and other filled areas. The recapture of the original attractiveness of the Neck--the restoration of water, parkland, and paths--represents an unachieved potential.

The Riverway--Here the stream flows open and undisturbed, bordered by continuous paths, unobstructed by cross-streets and buffered on both the Boston and Brookline sides by abundant oaks and willows.

Olmsted Park--Important wooded areas reach along the scenic Jamaica way and over extensive portions around Leverett and Ward's Ponds. Ward's Pond especially possesses uniquely tranquil and remote qualities, which are protected from the sight and sounds of the Jamaica way traffic by the tree-covered slope. An open, informal ballfield near Leverett Pond does not interfere with park use, but a covered skating rink has intruded with unfortunate results into the area near Willow Pond Road. The Leverett and Ward's Pond area is also an extremely important asset as undisturbed parkland, ponds, and woods because of its abundant flora and fauna. The Children's Museum has inventoried more than 300-species of birds and almost 350 species of other wildlife in this rich area.

Jamaica Pond--An important regional parkland recreation area, Jamaica Pond has boating and fishing facilities, a ballfield, and general park and path areas that serve great numbers of visitors in the summer. Its wooded areas, vales, and slopes represent a key resource of natural beauty at the southern end of the Scenic Corridor.

Public Objectives for the Scenic Corridor

The planning study of which this report is the result has sought to evaluate the environmental and recreational assets of the Charles River Basin, the Fens, and the Muddy River and to recommend ways in which these assets can be preserved, enhanced, and expanded. The objectives of the proposed action program are:

1. Conservation and perpetual protection of the streams and shores of the Scenic Corridor as open parkland and recreational open space.
2. Enhancement or recapture of the natural beauty of the streams and shores wherever it has been polluted, damaged, or lost to public enjoyment.
3. Preservation of scenic and historic areas within the river parkland and on its urban edge.
4. Better controls over urban development along the edge to insure compatible relationships between the natural landscape and urban form.
5. Strengthening of the continuity of the streams, parkland, and paths, and the linking of the Corridor to the Charles River Valley upstream of Watertown and to the renewed waterfronts of Boston Harbor.

CHAPTER II--SUMMARY OF MAJOR RECOMMENDATIONS

Historic Importance

In order to provide suitable recognition at the national level of Boston's contributions in the fields of outdoor recreation and open space, the United States Department of the Interior should designate a Charles River National Historic Recreation Landmark District, including the parkland of the Charles River Basin, the Fens, and the Muddy River.

Preparations should be made for a celebration of the first centennial of the development of the Boston park system in 1976, one hundred years from the date of the Faneuil Hall meeting at which Boston's first parks plan was endorsed, as part of the celebration of the bicentennial of American independence in Boston.

Continuity of the River Parkland

It is important that the entire rim of the Charles River Basin and the length of the Muddy River, including the Fens, be considered a continuous public embankment; that where none now exists, embankments be developed; that the existing path systems of the Basin and the Muddy River be improved and new paths built where necessary; and that the streams themselves be open and continuous.

In order to achieve continuity, two kinds of public action are required: restoration of deleted sections of path or shore and acquisition of the Watertown Arsenal and North Terminal Area shorelines.

Along the Muddy River there are three points at which parkland and path continuity has been seriously disrupted and should be restored: the Jamaica-

way at its intersection with Boylston Street and Huntington Avenue, the Fenway neck between the Fens and the Riverway, and Charlesgate.

At a number of places along the Charles, continuity of the parkland is now broken, but reconstruction is possible by such devices as path construction, new overpasses and underpasses, and new embankment development. Places at which work is recommended are Watertown Bridge, Greenough Boulevard Extension, Eliot Bridge, Soldiers Field Road fronting the Turnpike, Memorial Drive at B. U. Bridge, the Memorial Drive Interchange at Longfellow Bridge, and the Charles River Dam.

The shore of the Watertown Arsenal should be developed by the MDC as a metropolitan-regional park and integrated with the neighboring shore park areas of Nonantum Road, the former abattoir shore, and Soldiers Field Road. It is recommended that the entire shore between Arsenal and North Beacon Streets be acquired to an average width of 300 feet, for a total of approximately 30 acres, in order to insure the rehabilitation of a scenic riverside edge, to provide areas for various low-intensity recreational uses, and to make possible the reconstruction of Charles River Road away from the shore.

Behind the Arsenal property to the east of Arsenal Street, an open slope area is available for development. A portion of the area, seven acres in size, should also be acquired by the MDC and developed for intensive outdoor recreation facilities.

The blighted shores of the Charles in the North Terminal Area should be transformed into landscaped public recreational embankments, linking the Charles River Basin with Boston Harbor. Because of the exceptional importance

of upgrading this riverfront to a prime role in Boston's Scenic Corridor, the problems of the North Terminal Area should receive high priority in public attention and action.

As a first step, the Commonwealth should immediately undertake to clear its title to the entire riverfront of the North Terminal Area between Charles River Dam and the proposed Warren Avenue Dam. Whether or not further legislative approval is given to the MDC dam construction project, the riverfront should be in public control.

Before authorizing construction by the MDC of the new dam, the Legislature should take care to provide the MDC with the means to rehabilitate the shores and eliminate pollution sources in order to make certain that the newly impounded waters will be of no lower quality than those of the Basin, with which they will be directly joined. Public acquisition of the entire shoreline is thus essential.

A joint committee of Boston and Cambridge should be convened by the Metropolitan Area Planning Council to develop and submit a plan to the Commonwealth for implementation of the recommendations of the North Terminal Area Study for extension of landscaped embankments from the Charles River Basin to Warren Avenue.

The North Terminal Area Technical Committee, which is the coordinating body on public transportation projects in the area, should insure that plans for the proposed Leverett Circle-City Square Bridge, the connections between the Inner Belt and the Fitzgerald Expressway, and other roadways crossing the Charles are well-coordinated with plans for the embankments.

In new development projects that may take place fronting on the embankments, strong efforts should be made to attract investment in facilities compatible in use, siting, and design with the public activities and recreational character of the waterfront.

Once continuity is achieved by a program of restoration and acquisition, provision of new elements should be undertaken that will enhance the value of the continuity. Suggested improvements are a Boston Bikeway, an improvement program for streets leading to the river parkland, extension of paths like the Freedom and Heritage Trails to join the Scenic Corridor path system, and a landmark at Charlesgate to emphasize the importance of the converging stream, park, and path systems of the Basin and the Muddy River and to serve as a mark of recognition for the historic efforts that created them.

The Urban Edge

Although considerable study must be given to the subject of controls over the urban edge of the Scenic Corridor, it is appropriate for this report to make recommendations about the directions such study might take.

The MAPC should define the geographical area of Boston's Scenic Corridor--the Charles from Watertown Dam to Boston Harbor, the Muddy River from the southern edge of Jamaica Pond to Park Drive, and the Fens from Park Drive to Charlesgate. The MAPC should also define three corridor zones parallel to the streams--the river parkland, the urban edge, and the skyline.

The MAPC, in cooperation with all jurisdictions having interests along the Scenic Corridor, should develop recommendations for these jurisdictions on how they might more effectively protect the Scenic Corridor through existing controls over all lands within the river parkland and urban edge zones of

the Corridor.

The City of Boston should take immediate steps to protect its own Charles shoreline in the districts upstream of B. U. Bridge that are presently zoned for industry, either by a new ordinance like the Park Frontages Ordinance or by amending the Zoning Code.

The MAPC should study alternatives for a more effective framework for action in the Scenic Corridor, such as enlargement of the MAPC's existing powers of review and recommendation or establishment of a Design Advisory Board or of a Charles River Valley Commission with powers to acquire land.

Transportation

Two kinds of projects are proposed that would affect the Scenic Corridor. One is construction of expressways and arterial roadways by the Department of Public Works and the other is enlargement of the capacity of parkways by the Metropolitan District Commission.

If the DFW expressway and arterial system is sensitively designed in response to a policy that places emphasis on parks and recreation and on urban amenity in general, it can be compatible with the parkland and parkways of the Corridor. Forthcoming important projects are the Inner Belt-Charles River crossing, the Inner Belt-Fenway crossing, the North Terminal Area bridge and interchange, and the Watertown Bridge interchange.

With regard to MDC parkway changes, the important question is not how to find a workable design but whether river parkland should be diverted at all for parkway road purposes and, if so, in what form and degree. The MDC now proposes to widen Greenough Boulevard, Charles River Road on the Watertown

Arsenal shore, Monantum Road and Soldiers Field Road Extension, Soldiers Field Road itself, and the Jamaica way.

The Commonwealth should make clear, by statutory action if necessary, that parkways are a different class of road from expressways and arterials. The park roads of the Scenic Corridor should be designated scenic parkways, to serve as more leisurely options to other routes, along the edges of the Corridor.

A moratorium should be declared by the MDC on the diversion of river parkland along the Charles and the Muddy for widenings and other capacity-increase changes to the metropolitan parkways. Such a moratorium was suggested by the MAPC in 1965 to protect parkland for "open-space, recreation or conservation use."

The MAPC, as the State's coordinating planning agency, should be required to assist in determining the characteristics of all future State-sponsored road projects within the river parkland.

The road-building powers of the MDC, which were originally legislated in an age that did not anticipate the full impact of the automobile, should be amended to resolve the conflict within the MDC between concern for park development and concern for road construction.

Because passage of a Federal scenic roads and parkways program can be expected within the next few years, the Commonwealth and local jurisdictions should be prepared to submit applications to any such program for aid in commercial roadside rehabilitation and for general aesthetic improvements to the parkways of the Corridor.

Arterial streets in Boston and neighboring communities should be improved, with Federal funds if they become available, to relieve those sections of the parkways which presently serve as arterial connectors. Trucking, buses, and other commercial traffic on the parkways should continue to be restricted.

New park road construction, where needed, should be kept as far from the river shore as possible, to prevent conflict with river-shore park use and recreation. The Watertown Arsenal shore and the North Terminal Area are two places where it is vital that road alignments be chosen with ample regard for park and recreation uses.

The deleterious effects of past road construction projects should be amended whenever possible. Restoration of the continuity of parkland, paths, and stream should have high priority in project funding and design, especially at the intersection of the Jamaicaaway and Route 9 and at the Inner Belt crossing of the Fens.

Recreation on the Shores

(no specific recommendations were prepared for this draft)

Recreation on the Rivers

By appropriate zoning, that is, by establishing priorities for certain recreational uses in each section of the Basin, conflicts can be avoided and much greater use made of the waters of the river. There is room on the Charles within the existing Basin for an increase in boating activity of perhaps fifty percent, provided that zoning policies be established and enforced.

Inasmuch as the MBO has been empowered by the Legislature to regulate the

use of the Charles River, the MDC can and should, after consultation with the five communities and the private and institutional interests along the river, institute zoning regulations.

Appropriate zoning of the river would be as follows:

<u>Zone</u>	<u>Description</u>	<u>Priority Use</u>
Zone 1	Charles Harbor (North Terminal Area Riverfront)	Powerboating (all new facilities)
Zone 2	Charles River Dam to Longfellow Bridge	Powerboating (additional facilities)
Zone 3	Longfellow Bridge to Harvard Bridge	Sailing, rowing
Zone 4	Harvard Bridge to B. U. Bridge	Sailing, rowing (additional facilities)
Zone 5	B. U. Bridge to Arsenal Street Bridge	Rowing
Zone 6	Arsenal Street Bridge to Watertown Dam	Rowing (additional facilities)

In order to take full advantage of the freed potential, new facilities should be constructed in the Basin. Up to four new boathouses could be established for rowing, and near Kenmore Square a new sailing pavilion should be constructed for both college and public use. An improved network of public and excursion landings should be built, and more excursions provided.

A comprehensive program to insure a "B" quality classification in both the Charles and the Muddy should be undertaken, in order to improve fishing, boating, and skating.

Pollution

It is strongly recommended that a Class B designation be assigned to the Charles River Basin and the Muddy by the Massachusetts Division of Water Pollution Control. No single measure can achieve the effective abatement that is needed. The following interdependent steps are essential to solving the problem: elimination of direct discharges of pollutants into the streams, diversion of sewer overflows, systematic separation of combined sewers, low-flow augmentation, flood control improvement, and debris clearance.

CHAPTER III--SEVEN VIEWS OF THE RIVER LANDSCAPE

View 1--Historic Importance

Although Boston's heritage of historic sites and landmarks of this nation's early years is widely celebrated, the contributions made by Boston and its neighbors to outdoor recreation and the preservation of natural open space have failed to receive the recognition they deserve. Boston's contributions have been of major importance to the nation, and the most important of these contributions can be found within the common park system of the Charles River Basin and the Muddy River or on the upper banks of the Scenic Corridor, within sight of their streams.

In the forty years before World War I, the leadership of Boston's most illustrious citizens and the talent of some of the finest landscape architects, planners, and architects in America combined to create a system of parks that outshone any other. The success of the newly created parks was attested to by the artistic world and the general public alike.

The irony of success in park-building, however, is that by the time the plantings are fully grown, the handiwork of the builders is no longer evident and people begin to take the parkland for granted as natural growth, to neglect and even to despoil it. It is important, therefore, to create a framework for recognition of the value of the park legacy and to seek out ways to preserve the art and the investment of the past.

Past Achievements

Three aspects of the legacy of the Scenic Corridor deserve commemoration. First, portions of the Corridor, at the time they were created, were major innovations in the development of parks in America. Second, the efforts of some of the most talented men of their time went into building the park system. Third, within the Corridor are historic landmarks of importance to all Americans.

1. Innovations

Before the creation of the Boston park system, the word "park" to Americans meant an imitation of the beautifully landscaped estate of an English nobleman. The Boston park system in general and four elements in particular--all in the sections of the system along the Charles and the Muddy--created entirely new ideas about the uses of open space for the American public. Each was unique for its time but pointed the way for similar developments elsewhere in succeeding years.

The Back Bay Fens was the product of a pioneering public works project, which had the dual objective of flood control and recreation. By creating artificial marshes above the meandering tidal creek in which to store the waters of Stony Brook in time of flood, Frederick Law Olmsted solved severe sewage disposal and flooding problems and created an area of wild beauty that stood in marked contrast to the formality and elegance of the neighboring Back Bay. The transformation of the area sustained and increased land values in the surrounding area and made possible further high-value development. The roads, footpaths, and saddle-paths through and around the Fens were part of

the design, intended to display the varied facets of the landscape to their greatest advantage.

The creation of Charlesbank in the 1880's, with its "outdoor gymnasium" for men and women and its playground for young children, was a national event that helped inspire the American playground movement. The revolutionary aspect of Charlesbank lay in the provision of elaborate play equipment at City expense, creating a modern playground instead of a simple open playing field. In addition to the equipment for gymnastics for adults, the playground and "ereche" for children---where they could be left all day by working mothers---included a "sand court," or sandbox, the first in America.

The third innovation in the Boston Park system was The Parkway, as it was then called, the series of roadways that led from Charlesgate, along the Fenway, Riverway, Jamaicaway, and Arborway, to the Arnold Arboretum and Franklin Park. At the end of the century it was described as "an irregular and comparatively narrow strip of roads, footpaths and saddle paths for pleasure purposes enclosing picturesque scenery" in a statement that was careful to distinguish it from the more formal boulevard. This distinction---this kind of roadway---was unknown to Americans until Boston's Parkway was built.

Perhaps the foremost of the innovations in the early years of Boston's parks---and certainly the most popular achievement today---was the Charles River Basin, the first fresh-water Basin in the United States to be formed from a tidal estuary, the second in the world after the Alster Basin of Hamburg, Germany. After the dam was built in 1910, land along the edge was filled in and the park known as the Embankment created from noisome mudflats, as the

Fens had been a generation before. The Basin and the Embankment have come to signify Boston to Americans as clearly as the Empire State Building or the Statue of Liberty signify New York City.

2. Statesmen and Artists

The Scenic Corridor is the result of the dedication of Bostonians to the public goal of providing parks for the people and of the genius of the landscape architects and architects who designed and built the system.

In 1869 a group of illustrious Bostonians petitioned the City to consider providing a park or parks for the use of the public. In 1876 enabling legislation had been passed, Park Commissioners appointed, and a comprehensive plan for parks prepared, and in June a mass meeting of citizens was held at Faneuil Hall that endorsed enthusiastically the Park Commissioners' plan. Prominent men who lent their names to the cause included Charles Francis Adams, Dr. Oliver Wendell Holmes, Eben D. Jordan, Mayor Patrick Collins, and Richard Henry Dana, Jr. Their efforts were successful, and purchase of land for the Back Bay Park, later the Fens, began immediately.

Frederick Law Olmsted not only drew up the general plan for the park system, he designed and built some of the most important elements of it, including the Charlesbank playground and the entire park system (The Parkway) along the Muddy River and the Fens, from Jamaica Pond to the Charles River.

Henry Hobson Richardson, the inventive American architect whose best-known work in Boston is Trinity Church, collaborated with Olmsted on architectural work and designed the beautiful Boylston Bridge, which carried out Olmsted's idea that the bridge should "be the frame of a quiet, distant, rural

scene from the bridge on Commonwealth Avenue" and that it "be the most conspicuous object on the [Fens] and its architecture . . . be studiously appropriate to the circumstances."

An untimely death prevented Charles Eliot from taking part in the actual construction of the Charles River Dam, the Basin, and the Embankment, but he had an important part in forming the concept of the Basin, which was carried out after his death.

3. Historic Landmarks

Along the shores of the Charles and Muddy Rivers stretches a chain of sites and developments that is part of the history of America as a nation. The British crossed the Charles from the Boston Common shore to march on Lexington and Concord in 1775. The following year Washington camped at Captain's Island, now part of Magazine Beach. Harvard College, the first college of the North American continent, was founded on the shores of the Charles in 1636. Henry Wadsworth Longfellow lived on its north bank, and his preserved home retains a view of the river, through scenic easement, to this day. A monument by McKim, Mead & White marks the spot where the great historian, and benefactor of the Boston park system, Francis Parkman, lived on the shore of Jamaica Pond.

Recommendations for Appropriate Historic Commemoration

Because of the national significance of the innovations in park building within Boston's Scenic Corridor, because of the importance to the nation of the men who had responsibility for creating the parkland, and because of the value to the nation of the historic sites within the Corridor--for all these

reasons preservation and enhancement of the parkland are appropriately matters of national concern. In order to provide suitable recognition at the national level of Boston's contributions in the fields of outdoor recreation and open space, the United States Department of the Interior should designate a Charles River National Historic Recreation Landmark District, including the parkland of the Charles River Basin, the Fens, and the Muddy River. A Federal landmark designation would not limit the responsibilities of the local and metropolitan park agencies. Only separate action by the General Court and the local communities could place a part of the park in a preserved status. This designation, however, would elevate the image of the parkland and its rivers and, most important, would bring to them the kind of public attention and dedication that is necessary for carrying through a comprehensive program of rehabilitation and enhancement.

There is also an opportunity for a local expression of support that will focus public attention on the importance of the Scenic Corridor and encourage suitable programs for preserving it in the form best suited to modern needs. The hundredth anniversary of the Faneuil Hall meeting to which Bostonians came to show support for the program of the new Boston Parks Department will take place in 1976, during the celebration of American independence and the 1975-1976 Boston World's Fair. It will be appropriate at that time to mark this anniversary and to commemorate the historic measures on behalf of outdoor recreation and open space preservation that have been taken within the parkland of the Charles River Basin and the Muddy River. Part of the commemoration must be recognition of the landscape art and architecture of Olmsted, Richardson, and Eliot, recognition that will favor preservation but that will also provide a framework within which adaptation to the changing park needs

of the twentieth century can take place. This report therefore recommends celebration of the first centennial of the development of the Boston park system in 1976, one hundred years from the date of the Faneuil Hall meeting at which Boston's first parks plan was endorsed, as part of the celebration of the bicentennial of American independence in Boston.

National landmark designation and local celebration of the centennial of the park system are both important, but they are most important as expressions of will--the will to conserve the heritage of the past and to enhance that heritage in the present.

CHAPTER III--SEVEN VIEWS OF THE RIVER LANDSCAPE

View 2--Continuity of the River Parkland

There are special qualities which distinguish a scenic corridor, one through which a river and its tributary streams flow, from other scenic areas. One of the most valuable of qualities is the continuity of flow, not only of the streams but also of the shoreline landscape--the broad dimensions of open space, the winding paths along the shores, and the view of an aesthetically urban edge.

A continuous, free-flowing stream will be protected and enhanced by the people who enjoy its qualities, while a stream submerged in conduits and disjointed by highway barriers is easily neglected and polluted.

Continuity of the stream itself is of value to the clarity of image with which resident or visitor perceives the city. Where river, park, and path are continuous together, the scenic and civic images are the most meaningful.

Continuity of the shoreline landscape insures the public of access to all parts of the river parkland from any one point within. Even narrow edges become more valuable to the public if they are linked into related river parkland set aside for open-space and recreation purposes.

The usefulness and attractiveness of riverside paths become especially apparent if they lead to distances limited only by the natural features of the river geography. Separated from the disturbance of urban traffic, the paths of the shore give greatest satisfaction where they are set securely within open or wooded areas that can be clearly identified with the river as natural environment.

The use of parkways for commuting, sightseeing, and driving for pleasure is also made more satisfying by the continuity of adjacent parkland.

Wherever the continuity of parkland along the Scenic Corridor has been broken, the unique advantages of uninterrupted riverside have been damaged or lost. Bridges designed without pedestrian underpasses, whole sections of shoreline that are inaccessible or impassable because of highway design, cross streets that were not constructed to allow for grade-separated parkland beneath, parking lots and maintenance yards that have been sited squarely in the middle of invaluable park areas, and the chain-link fencing of recreation facilities that has cut off shoreline paths--all are barriers to continuous movement and use along the shores. The shoreline of the Charles especially is disjointed because two key sections, the Watertown Arsenal shore and the North Terminal Area waterfront, are not in public park agency ownership.

Because of the serious nature of the encroachments on the river parkland, the public has considered the broken park links to be irretrievably lost. However, re-establishing path continuity along the entire shoreline of the Basin and the Muddy is a distinct possibility, and in some cases where parkland and stream have been deleted in the past, restoration is also feasible.

The possibility is therefore real for achieving, for the first time since the objectives of the original Charles River Basin Commission were formulated, a complete and continuous public shore from Watertown Dam to Boston Harbor. In order to achieve this, two kinds of public action are required: restoration of deleted sections of path or shore and acquisition of the Watertown Arsenal and North Terminal Area shorelines.

Restoring the Continuity of the River Parkland--The Muddy

Along the Muddy River all of the shoreline is in public ownership, and only restoration is required. However, there are three points at which parkland and path continuity has been seriously disrupted: the Jamaicaway at its intersection with Boylston Street and Huntington Avenue, the Fenway neck between the Fens and the Riverway, and Charlesgate.

The Jamaicaway-Route 9 Intersection--Proposed construction at the intersection of Route 9 and the Jamaicaway provides an opportunity for a traffic solution that is also a solution to park and recreation problems. Grade separation of roadbeds would permit continuous parkland, with the river visible and the path system usable and enjoyable. (This intersection is also discussed in View 4--Transportation.)

The Fenway Neck--The existing break in the Muddy River-Fens parkland at the Sears parking lot can be repaired when the Inner Belt is built if the depressed and covered section is continued north under the MBTA Riverside-line tracks. On the other hand, the open cut now proposed by the DPW would create a break in the parkland that would have even more damaging effect than the present situation.

If parkland is restored and carefully designed, the path system can continue without serious interruption, and the same effect of continuity between the Muddy and the Fens that was created by Frederick Law Olmsted can again be achieved. (This matter is also discussed in View 4--Transportation.)

Charlesgate--The absence of a clear, pleasant, and safe path between the Fens and the Charles River Basin is the result of the construction at grade of the major transportation arteries of the Back Bay: Storrow Drive, Beacon Street, Commonwealth Avenue, the Massachusetts Turnpike, the Boston and Albany Railroad, and Ipswich and Boylston Streets.

Because of the heavy traffic on Boylston Street, a new traffic signalization system should be considered for the sake of pedestrian safety. The walkway at the edge of the northbound roadbed of the the new fly-over should be studied for possible improvements. The existing walks of Charlesgate East, with signalized crossings at Commonwealth and Beacon, are safe for pedestrian use, but at Storrow Drive, where no provision exists for pedestrians who wish to reach the Charles Embankment, there should be a new path north from Beacon Street beneath the viaduct ramps and across a new overpass over the westbound roadbed of Storrow Drive.

Restoring the Continuity of the River Parkland--The Charles

At a number of places along the Charles, continuity of the parkland is now broken, but reconstruction is possible.

Watertown Bridge--The Metropolitan District Commission has a narrow path easement along the river bank on the edge of Lewando's parking lot. This easement should be used to develop suitable pedestrian access between the dam and the MDC swimming pool to the west, and Watertown Park and the Charles River Basin to the east of Watertown Bridge.

Greenough Boulevard Extension--There is a short section of this shore, approximately four hundred feet long, where road construction has eliminated the path. The shoreline should be modified, therefore, to accommodate a new path.

Eliot Bridge--There are two underpasses, one in each abutment, that are presently blocked off and used for storing maintenance equipment. Reopening these passages would eliminate the need for pedestrians to cross the highly traveled roadways.

Soldiers Field Road, Fronting the Turnpike--The Boston shore of the Basin, between River Street Bridge and B. U. Bridge, is not passable by cyclist or pedestrian. Reconstruction of the shore as an embankment with a tree-lined pedestrian- and bicycle-path would require only a five-foot widening of the shore.

The new embankment would be accessible from the Harvard shore upstream via existing walkways which require only minor improvements. Safe access from the downstream Kenmore Square shore can be provided by construction of a new pedestrian underpass under the New York Central spur track between Storrow Drive and the Charles.

Development of the new embankment and improvement of access to it would be major achievements in linking the Basin shores at Harvard with the lower Basin. In addition, the total development (the tree line, in particular) would do a great deal to improve the presently bleak character of the river bend along the Turnpike, giving pleasure to motorists as well as pedestrians and park users.

Memorial Drive at B. U. Bridge--At present, passage along the edge of Memorial Drive in the vicinity of B. U. Bridge is extremely hazardous. More car-pedestrian accidents occur at the Memorial Drive traffic circle at B. U. Bridge and along the commercial frontage north of Magazine Beach than at any other location on the Basin or along the Muddy River. Between mid-1964 and mid-1967 there were twelve bicycle and pedestrian accidents in this area, according to figures provided by the MDC police.

Because of these extremely hazardous conditions, overpass and underpass possibilities should be studied by the MDC. Also, plans for the Inner Belt crossing of the river should be drawn by the DPW in such a way that a grade-separated and continuous embankment could be constructed from the River Street bridge to the MIT shore. (The Inner Belt crossing of the Charles is also discussed in View 4--Transportation.)

Memorial Drive Interchange at Longfellow Bridge--Construction of the interchange eliminated the original path which followed the river shore. Only an emergency walkway two and a half feet wide was provided on the rim of the interchange, which projects outward over the water. Pedestrians and cyclists cannot use this and must traverse a marked path crossing seven separate roadbeds between the shores east and west of Longfellow Bridge.

The MDC should widen or reconstruct the present emergency walkway to provide sufficient width for pedestrian and bicycle passage along the continuous rim of the interchange.

Charles River Dam--Although the Dam was originally dedicated and suitably landscaped as a public embankment, access to and along its Basin edge is not simple today. On the west are the MDC boathouse and maintenance facilities; on the east the boat lock, which pedestrians circumvent by following the

O'Brien Highway sidewalk. The Science Museum has recently constructed a parking facility up to the water's edge, adjoining the MDC boathouse.

None of these facilities presents insurmountable obstacles. It is recommended that the MDC provide a continuous path along the dam edge, connecting both shores of the Basin. A pedestrian bridge would cross the southern end of the lock. The path would pass through a new landscaped area planned by the Museum on the site of an existing temporary building. It would continue along the existing edge on the Basin side of the Museum and be cantilevered over the water at the edge of the parking facility.

The usefulness of the restoration of this scenic edge to public passage should become evident in many ways: greater accessibility to recreation facilities on the Cambridge and Boston shores, better pedestrian and bicycle approaches to the Museum of Science, and improved path connections with the embankment proposed for the Charles in the North Terminal Area.

River Parkland to be Acquired

The Watertown Arsenal Shore--The U. S. Department of Defense has ceased most of its operations at the Watertown Arsenal, and the General Services Administration is negotiating for sale of more than seventy acres of the Arsenal property. A small section of the Arsenal grounds, at the western end, will be retained by the Department of Defense.

The Arsenal site is on the slope of the Watertown bluff, fronting on about 4,000 feet of shoreline, between Arsenal Street Bridge on the east and North Beacon Street to the west. An additional section of approximately seven acres is further to the east across Arsenal Street, roughly parallel to Greenough Boulevard Extension and ranging from 200 to 400 feet from the Charles.

The immense buildings of the Arsenal can be seen for some distance along the river roads. Their size and heavy architectural style are accentuated by their site on the bluff. The bottom of the slope at the river's edge is overgrown with brush and woods. Close to the shore is a public way, Charles River Road, which, together with the shoreline, is under the "care and control" easement of the MDC.

The MDC is seeking full title to the shore and road. The Town of Watertown is considering redeveloping all of the Arsenal site, with industrial use receiving high priority. Because of these major construction possibilities, the often-stated proposal for public acquisition of the Arsenal shore for river protection and park purposes becomes doubly important. Acquisition by the MDC of a wide embankment including the scenic edges of the bluff is essential, not only to complete the publicly-owned continuous park rim of the Basin but also to prevent the encroachment of industry and intensive high-rise developments on the river's edge.

The Arsenal shore should be developed by the MDC as a metropolitan-regional park and integrated with the neighboring shore park areas of Nonantum Road, the former abattoir shore, and Soldiers Field Road. It is recommended that the entire shore between Arsenal and North Beacon Streets be acquired to an average width of 300 feet, for a total of approximately 30 acres, in order to insure the rehabilitation of a scenic riverside edge, to provide areas for various low-intensity recreational uses, and to make possible the reconstruction of Charles River Road away from the shore.

In addition to the very considerable benefits for the metropolitan community, the benefits to the town of Watertown of setting aside a wide shore area as parkland are evident. The revenue-producing potential of the general

area would not be reduced if greater densities were accommodated on land retained by the Town for redevelopment, and the environmental amenities and the numbers of visitors to the new parkland would be potential local assets.

Behind the Arsenal property to the east of Arsenal Street, an open slope area was rezoned by the Town from industrial to residential apartment use in 1966, and intensive development has recently been proposed for this site. A portion of the area, seven acres in size, should also be acquired and developed for intensive outdoor recreation facilities. The development of this property as recreational parkland will also help buffer visually any urban development that would rise on the slopes to the north.

The North Terminal Area Waterfront--The blighted shores of the Charles in the North Terminal Area should be transformed into landscaped public recreational embankments, linking the Charles River Basin with Boston Harbor. Because of the exceptional importance of upgrading this riverfront to a prime role in Boston's Scenic Corridor, the problems of the North Terminal Area should receive high priority in public attention and action.

Lying astride the lowest course of the Charles between Charles River Dam and Boston Harbor, once an important shipping and rail terminus, the North Terminal Area is now relatively dormant. If and when the B & M pulls back its passenger terminal and freight lines to some point on the north of the Charles, as has been proposed, land-use could be greatly altered throughout much of the area, although North Station will certainly continue to serve as an important transportation and public transit center. The Boston Garden, which is located at North Station, has recently been expanded and will also likely remain an important focus of the area. Trucking depots, parking lots,

and a construction materials depot occupy much of the area outside the B & M tracks.

Under plans presently being considered by the public agencies responsible for transportation planning in the North Terminal Area, the viaducts of the Fitzgerald Expressway, the Central Artery, the Lechmere MBTA line, and the Charlestown Bridge would be joined by approximately eight other viaducts and associated approach ramps and roadways. Proposed are the Leverett Circle-City Square Bridge, Inner Belt connections with the Fitzgerald Expressway, and a reconstructed Warren Avenue Dam. The siting of the many piers and abutments necessary for the spans will have an important effect on future land use, and it is obvious that if they are sited on the edges of the Charles, future use of the edges for recreation or any other purpose would become virtually impossible. (View 4--Transportation also deals with this construction.)

Recreational use and aesthetic treatment have until now seemed highly improbable in this area because of the extreme degree of pollution and dilapidation which characterize the waterfront. Obsolete structures and pilings are in a state of decay and rat-infestation, sea walls have deteriorated, the Warren Avenue Bridge, which collapsed into the Channel some years ago, remains as it fell, and a number of Boston and Cambridge sewer lines empty directly into the waters. Millers River at low tide exhibits mud flats that must be as unsightly as those in Back Bay which a century ago stimulated public action for the creation of the Fens and the Charles River Basin.

Before authorizing construction by the MDC of the new dam at the Warren Avenue Bridge site, the Legislature should take care to provide the MDC with the means to rehabilitate the shores and eliminate pollution sources in order

to make certain that the newly impounded waters will be of no lower quality than those of the Basin, with which they will be directly joined. Public acquisition of the entire shoreline is thus essential.

Development of the shoreline into public embankments for purposes of recreation should immediately follow acquisition and rehabilitation. This proposed action was endorsed by the public and private agencies with interests in the area in a joint report entitled the North Terminal Area Study, published in August 1962. Subsequent policy statements by the MAPC and the BRA have supported this proposal.

Rather than diminish the tax-base potential of the area, public acquisition and development of the embankments, even at 200-foot widths, would effectively enhance investment opportunities by insuring the elimination of waterfront blight and the general rehabilitation of the area's environmental qualities.

In the North Terminal Area compatibility between the urban edge and the scenic river parkland will be a matter of considerable importance. Here, in fact, there are unique opportunities to relate land use selection and physical design in the adjacent commercially developable properties to the public character of a renewed riverfront, which, like the planned quaysides of the new Boston Waterfront, would possess a high potential for sightseeing, pedestrian, and boating service activity. In addition, new development should be suitably related to the important existing functions of the Area as a commuter and public transit gateway to downtown Boston and as the location of one of the city's most important sports facilities, the Boston Garden. Both

functions could be well served by the amenity of a redeveloped public riverfront.

Until now the North Terminal Area has been healthiest on its circumference, with the greatest decay along its inaccessible riverfront. By rehabilitating the riverfront and providing it with access and activity, public action may work to revitalize the Area as a whole. Moreover, by providing boating services and facilities for small craft in addition to other recreational facilities, Boston would be able to meet some of the increasing demand for this kind of recreation. The 1965/75 General Plan for the City of Boston and the Regional Core clearly states the City's intention that "the fullest possible use be made of Boston's recreational assets:

"1. A variety of recreational opportunities conveniently located inside the City is essential to Boston's reputation as the 'City of Ideas,' for without these assets, Boston would needlessly forfeit a good part of the Regional population's time, creative energy, and investment in recreation to other Regional and national recreation centers.

"2. Existing non-recreational uses of Boston's harbor and river frontage constitute blighting influences and an unnecessary and expensive burden on public services, when, if they were turned to recreational purposes, they could bring in a considerable economic return to the City."

The question today is still not a simple one, because of the complicated relationships between various public programs and land-use possibilities. Final plans for the area must select physical land-use alternatives which will permit the optimum development of public recreational embankments, of transportation facilities, and of other land uses, with minimum infringement of one use on another.

As a first step, the Commonwealth should immediately undertake to clear its title to the entire riverfront of the North Terminal Area between Charles River Dam and the proposed Warren Avenue Dam. Whether or not further legislative approval is given to the MDC dam construction project, the riverfront should be in public control.

A joint committee of Boston and Cambridge should be convened by the Metropolitan Area Planning Council to develop and submit a plan to the Commonwealth for implementation of the recommendations of the North Terminal Area Study for extension of landscaped embankments from the Charles River Basin to Warren Avenue. The committee should be urged to insure that the embankments on both shores will be planned as open and continuous, serving as a pedestrian interchange between the Basin and the Harbor, the Museum of Science, Charlestown, the North End, North Station, and Government Center, Center, and interrelated with the Freedom Trail and the proposed North End Recreation Waterfront.

The North Terminal Area Technical Committee, which is the coordinating body on public transportation projects in the area, should insure that engineering of the proposed Leverett Circle-City Square Bridge, the connections between the Inner Belt and the Fitzgerald Expressway, and other roadways crossing the Charles are well-coordinated with plans for the embankments.

Specifically, the Technical Committee should endeavor to find a design alternative that will not require the placement of viaduct piers and abutments along the river edges--a measure that would render embankment development infeasible.

The Technical Committee should carefully study proposed road and viaduct alignments for the North Terminal Area to insure that developable land and embankment shoreline are not unnecessarily sacrificed. Alignment designs should preferably occupy the least possible land area consistent with the traffic flows that have been determined by the North Terminal Area Study and subsequent coordinated policy as having optimum benefit for Boston and the regional core.

Public and private action should be taken to develop boating facilities and services in coordination with rehabilitation and development of the embankments. The river channel should be enlarged and modified in outline to meet the needs of recommended water recreational development. In the commercially developable properties fronting on the embankments, strong efforts should be made to attract investment in facilities compatible in use, siting, and design with the public activities and recreational character of the waterfront. (View 6--Recreation on the Rivers discusses recreation possibilities in this area.)

New Elements in the River Parkland

Boston Bikeway--Once acquisitions and restoration are complete, bicyclists will be able to travel freely along the full circuits of the Basin and the Muddy River on either shore. At suitable points within the parkland, bicycle shelters and public rental outlets could be provided, and by the erection of appropriate signs additional loops could be provided on city streets.

Street Improvement Program--Streets over which people move on foot or on bicycles to reach the river parkland should be enjoyable paths. Therefore a program of improvements to the sections of such streets closest to river parkland should be undertaken.

Extended Paths--The complete path system around the Charles Basin could aptly be called the Charleswalk. At the North End and Charlestown the Charleswalk might link up with the Freedom Trail and with paths along the Boston Waterfront, while to the west the Heritage Trail of Cambridge might be linked up in the same way.

To the west of Watertown Dam trails might lead to the scenic valley of the upper Charles, while paths along the Veterans of Foreign Wars Parkway and the Arborway might join the Muddy River parkland at Jamaica Pond.

Scenic Corridor Landmark--At the confluence of the Muddy River-Fens park system with the Charles at Charlesgate, a minor modification of the shoreline should be made. An appropriate landmark here would emphasize the importance of the converging stream, park, and path systems of the Basin and the Muddy River and would serve as a mark of recognition for the historic efforts that created them.

Consistency of Parkland Use and Design

At some places along the Charles Basin, uses have been introduced that are unrelated and unsympathetic to park enjoyment. As soon as possible these uses should be removed, and certainly no similar encroachments should be permitted in the future.

The maintenance equipment yard on Soldiers Field Road near the Arsenal Street Bridge should be relocated away from the parkland and the site reused for genuine park purposes. If the MDC constructs a new police and maintenance headquarters, the new structures should not be on Soldiers Field Road parkland, or on any Basin parkland. A possible alternative is to construct new facilities on the present site of the Lower Division Headquarters at Leverett Circle. This property would continue to be strategically useful as a location for police headquarters, including enclosed garage space, and for providing open landscaped areas compatible with Charlesbank and the Museum of Science park areas.

In similar fashion, all misused land within the publicly owned river parkland should revert to appropriate use and design. The VFW Marsh Post on the edge of Moll's Half Acre was originally a swimming facility. The MDC should recover the use of this facility and could convert it, for example, into a nature exhibit and study center to provide school classes with an opportunity for studying the wetland biology of the adjacent area. Similarly, the American Legion MDC Post at Magazine Beach should be recovered by the MDC to serve the large numbers of park visitors who visit the Magazine Beach picnic area and swimming pool.

Although it can be said that no structures at all are the best park structures and there is indeed much merit in preserving natural open park areas clear of intrusive buildings, some structures are needed in parkland--shelters, for instance. The challenge is to reduce the intrusiveness of such buildings until they are fully compatible with their surroundings. The standard MDC covered skating rink is a good example of the wrong kind of park structure. The river parkland would be very much improved if the MDC were to agree to redesign or dismantle the quonset-shed roofs that have for some time intruded visually on the parkland.

The primary consideration for design within the river parkland should be creation of an harmonious whole. The landscape will of course vary between the casual naturalness of Ward's pond and the urbane quaysides that should be built in the North Terminal Area, but within each section of the parkland consistency should be maintained and every section should be designed with deference to the whole.

Over-all Policy Recommendations

Because the river parkland serves as a kind of open highway for the pedestrian, the boatman, and the bicyclist, every part of it becomes more usable by the public. Even narrow edges are more valuable when they are linked together. It is important, therefore, that the entire rim of the Charles River Basin and the length of the Muddy River, including the Fens, be considered a continuous public embankment; that where none now exists, embankments be developed; that the existing path systems of the Basin and the Muddy River be improved and new paths built where necessary; and that the streams themselves be open and continuous.

Although continuity can be achieved in most cases by improvements to property already owned by park agencies, embankments should be acquired and developed on the Watertown Arsenal Shore and in the North Terminal Area. The Arsenal shore should be developed by the MDC as a metropolitan-regional park and integrated with neighboring shore park areas. Acquisition of a wide embankment, including the scenic edges of the bluff, is essential, not only to complete the publicly-owned continuous park rim of the Basin but also to prevent the encroachment of industry and intensive high-rise developments on the river's edge.

The blighted shores of the Charles in the North Terminal Area should be transformed into landscaped public recreational embankments, linking the Charles River Basin with Boston Harbor. Of particular importance in the creation of a revitalized riverfront will be the resolution of transportation problems and of pressures for new development. Therefore, the problems of the North Terminal Area should receive high priority in public attention and action.

CHAPTER III---SEVEN VIEWS OF THE RIVER LANDSCAPE

View 3--The Urban Edge

"The growth is vital. The essential question is whether the growth can be shaped so that it will enhance the beauty of this great Valley, rather than destroy it."

The Hudson. The report of the Hudson River Valley Commission, 1966.

Uncontrolled urban growth along the waterfronts of American cities has devastated much of this country's landscape. Rivers have been easily polluted, the public has been denied use of the shores, and the scars of industrial construction are visible across broad water vistas in the center of urban populations.

The foresight of Bostonians of past generations has protected most of the city's riverfront areas. Boston made its first move to reclaim obsolete waterfront sixty years ago. Taking advantage of the decline of shipping in the Back Bay, it dammed the river, eliminated exposed and foul tidal flats, and created Boston's centerpiece, the Charles River Basin.

Thirty years previously, the rehabilitation of the Fens area and the Muddy River had been undertaken in order to create parkland from severely polluted waterways.

In both instances, the Legislature granted effective powers of acquisition and control to the agencies which would carry out the parkland and Basin programs. Controls here also extended to the urban edge. The Boston Park Frontages Ordinance was created to establish minimum setbacks and 70-foot maximum heights for new construction along the edges of the Muddy River--part of Charlesgate on the Fenway, Park Drive, the Riverway, and the

Jamaicaway--as well as Commonwealth Avenue in the Back Bay, the Arborway, and parts of Columbia Road and the Strandway as far as Marine Park.

If the Charles River Basin and the Muddy River were not now being caught up in the dynamics of urban change, the need for more effective controls over the edges of the Scenic Corridor might not be apparent. The problem today is different from that of the period of original development when the rivers, their flats, and their shores were the principal targets of improvement. Today it is the urban edge which requires improvement and safeguards against despoilment, for if nothing is done, the very value of the river parkland, assembled at great expense for nearly a century, may be damaged beyond repair.

The steady increase in the population of metropolitan Boston, the expanded use of high-rise construction, and new moves to use remaining open land along the rivers for industry and housing--all are developments that will have a significant impact on the Charles and the Muddy. Boston and the metropolitan community must absorb change and growth, but they also must guide development so that the natural resources that the Corridor holds are not destroyed for the sake of short-term gains.

Indirect controls over a significant part of the Basin's urban frontage have resulted from the establishment of two special zoning districts. The Beacon Hill Historic District and the Back Bay Architectural District were constituted in order to preserve the environmental character of Boston's famed older sections. The two districts form an invaluable scenic edge one and a half miles long, from Longfellow Bridge to Charlesgate.

Present and Proposed Development

Three major universities on the urban edges of the Basin constitute important shaping forces. In recent years all these universities have been engaged in ambitious building programs, and since 1960 fourteen high-rise residential buildings and two other towers have been erected by the universities along the Charles.

The neo-Georgian facades and bell-towers of the Harvard Houses on the Cambridge side have long been an important architectural asset of the Scenic Corridor. Many of the new Harvard towers, carefully designed and sited, are successfully integrated not only with the scale and character of the older houses, but with the qualities of Memorial Drive's sycamores, of the shores, and of the river. Along the Allston shore the Soldiers Field athletic grounds and Longfellow Meadow preserve open character, while the Business School buildings echo the Houses across the river.

M. I. T. and B. U. situated on the Lower Basin, have not had to resolve the close-quarter problems of Harvard on the river upstream, yet their high-rise structures have also been placed at some distance from the shore or have been sited and spaced with deference to the shore. For the most part they too have added valuable elements to the Basin's urban landmark edges.

The institutions of the Fenway area, in general, have not encroached upon the scenic frontage of the Muddy River in the course of their development. Here too it may be said that the development policies of the institutions have recognized the value of natural amenities in the area.

In the future the universities and other institutions along the Charles and in the Fenway can be expected to continue to expand. Because of these

development pressures guidelines should be sought that would apply to institutional development on the urban edge. Since the Lower Basin, the Harvard shore, and the Fenway edge vary widely in character, the guidelines sought should apply specifically to each area.

The only non-institutional high-rise developments along the rivers to date have been residential or hotel facilities. Ten private apartment buildings are situated along the Charles and four along the Muddy River. The second of two high-rise motels on the Charles is presently under construction.

In Boston recent construction on the edge of the Jamaicaway and in Brookline the development of an urban renewal project next to Leverett Pond are signs that further urbanizing pressures will be felt in what has been till now essentially a low-density area. In the case of Leverett Pond the unfortunate erection of high-rise slab buildings with insufficient setback from the park edge has clearly diminished the scenic values of the river parkland in this area. Park use can also be expected to be less attractive to the general public along this edge, because of the "occupation" of the edge by a high facade of housing which is visible, and at times audible, to park visitors below.

Under future development pressures, it is the Muddy River and the bluff-lined upper Charles--the narrow sections of the Scenic Corridor--that stand in greatest jeopardy, rather than the open Lower Basin, where, to the contrary, exposed urban edge and skyline architecture are desirable characteristics. Considerable study should be given to the establishment of appropriate guidelines for development along the Muddy River and the narrow Upper Basin that will protect their unique and valuable qualities.

Industrial and commercial development within the Scenic Corridor has also expanded in recent years. There is no question that this sort of development can be accommodated; the problem is to determine measures that will insure appropriate siting and design of new construction so that it will be compatible with the river parkland.

An area generally successful in combining new development with scenic and recreation values is the Soldiers Field Road frontage, west of Harvard Stadium, an area where light industrial concerns have preserved tree-lined property fronts, have constructed separate access drives in some cases, and have generally adopted architectural designs that do not intrude upon the visual space of the highly visited Soldiers Field Road park shore. Many have refrained from roadside advertising.

A radically different situation has developed on Soldiers Field Road Extension, on the former Brighton abattoir shore, between Arsenal Street Bridge and North Beacen Street Bridge. Here light industry and a variety of commercial enterprises have sprawled along the frontage in great disorder. In two cases, building edges are within twenty feet of the curbline of the road, a situation permitted under the M-1 light-manufacturing zoning applied to this district. There is no separate service road, although traffic generated by some of the enterprises is high. There is no planted tree line on either side of the road, and the river shore has not been rehabilitated and planted by the MDC. The MDC is planning, in fact, to use the unrehabilitated shore for road building, rather than embankment development. (View 4--
Transportation has a description of MDC road expansion plans along this shore.) Utility poles, billboards, poorly designed parking lots, and neon-lighted roadside advertising aggravate the undesirable visual character of the

area. Lastly, the deeply eroded and exposed slopes of the Birmingham Parkway bluff to the rear of the properties not only affect the appearance of the immediate area but, because of their visibility, damage the scenic value of the Charles for half a mile to east and west.

A second area possessing disturbing roadside characteristics is the frontage of Memorial Drive in Cambridge upstream of Magazine Beach. This area, most of which is zoned for office and business use, may in time upgrade itself. The high volumes of traffic, however, that are presently generated by existing facilities have a serious impact on the use of Memorial Drive, and increasingly high traffic volumes can be anticipated in the future. In this case it will be important for the City of Cambridge and the MDC to study carefully the possibility of providing shoppers and other visitors in this area with a separate service road and of limiting access along Memorial Drive to a safe and convenient number of points.

With the exception of Harvard's Business School and athletic grounds, Boston's frontage on the river parkland above B. U. Bridge is zoned continuously for more than three miles of M-1 manufacturing. There are two principal areas of concern: the abattoir area discussed above and the section between B. U. Bridge and the Harvard Business School. Located here are the New York Central Railroad yards and the Turnpike Authority tandem trailer trucking depot as well as a bottling plant and hitherto undeveloped parcels. If the area is subjected to further development, coordination of design with scenic requirements is essential. On the other hand, the visual deficiencies of the Turnpike viaduct, the railroad yards, and the trucking depot could be screened. Better means of control over the roadside, with an aim to restoring at least the edge of industrial lands to the river's scenic domain, ought to be explored.

The lowest section of the Basin, between Longfellow Bridge and Charles River Dam, where the Boston and Cambridge shores lie in close proximity, has experienced a pattern of frontage development quite different from that of either edge of the Basin to the west. Here construction has been intense on three sides: the hospital and residential frontages of the Boston West End; the public utility, industrial, and commercial frontages of the East Cambridge shore; and the Charles River Dam, where the Museum of Science has recently completed the first stage of an expansion program. Further development on all three land edges may be expected.

At several points on each of the three sides, buildings have been constructed with insufficient setback or no setback at all from the public edge. Changing land use and traffic obstructions have also cut back public access to the Basin shores and have diminished their usefulness and aesthetic qualities. If such deficiencies could be corrected, the public, the institutions, and the private enterprises of both cities would benefit. Obviously it is not a simple matter to choose the means to this end, here as throughout the urban edges of the Charles and Muddy Rivers, but without effective controls over the edge, Boston and the metropolitan area may lose the very assets of the Scenic Corridor which have sustained and enhanced the urban image over the period of a century and which are even more important for the future.

Another problem of the urban edge can be foreseen. In the lower Basin Boston's dynamic skyline holds an important role in the scenic composition of the Charles. Existing zoning and architectural controls on the Beacon Hill and Back Bay frontages of the Basin are advantageous in keeping open the only edge of the city from which Boston as a modern, growing regional core can be clearly viewed. The Cambridge side of the Basin has lately

experienced the beginnings of high-rise construction at distances not too remote from the shore. Although the recent and proposed construction projects, including that of NASA's Kendall Square complex, indicate that much of the emerging Cambridge skyline will be at some distance from the edge of the Basin, study of possible guidelines for height controls along both edges is desirable if future exposure of the important skylines is to be certain.

Edge Controls Recently Developed or Proposed

The extent to which edge controls should be asserted is a matter for study beyond the scope of this report; nevertheless, legislation and recommendations for legislation in Massachusetts and in other parts of the country offer examples of the kind of action that might be appropriate for protecting Boston's Scenic Corridor.

The 1965 Massachusetts Hatch Act for Flood Plain Control is probably the most pertinent legislation of the Commonwealth to date in respect to control over riverside urbanization. Inasmuch as little if any remaining undeveloped urban edge along the Basin and the Muddy River can be considered flood plain, the Hatch Act will benefit the Charles principally upstream. However, as an indication of the Commonwealth's concern for its waterways, it should earn the attention of any study of additional safeguards for the Basin.

"O" Class open-space zoning has been recommended by Charles W. Eliot II in a report to the National Capital Regional Planning Council. "O" zones would encompass not only parks and public open spaces but other spaces which are presently open and for which permanent preservation is considered desirable.

The MAPC, in its 1965 Open Space and Recreation Study, recommended a set of measures that included beautification incentives for owners of property adjacent to natural resource areas, acquisition of waterfront areas and scenic easements, and the possible establishment of "urban waterfront districts" similar to historic districts, in Boston and elsewhere.

In its 1967 Mystic, Charles and Neponset Rivers Summary Program, the MAPC recommended:

"public acquisition of the rivers and their related resources in order to assure their protection . . . [including] less-than-fee acquisition . . . suitable for the protection of scenic areas"; and

"A system of controls including zoning and other police power regulations . . . [to] be instituted simultaneously with the first priority acquisition program."

The 1966 Massachusetts Outdoor Recreation Plan also recommended various means for achieving open-space protection, including land acquisition, easement and right-of-way purchase, and zoning actions.

Legislation is necessary for providing controls over billboards, signs, utility structures, and other "furniture" on the river's edges. Likewise, legislation would be desirable for control of similar blighting elements on the edges of the parkways, although roadside zoning may already be feasible under existing enabling legislation. In 1952 the Supreme Court of Wisconsin upheld the authority of Jefferson County to establish restrictive areas along highways.*

Outside the Commonwealth significant achievements have been made in recent years in a number of important stream valleys. Connecticut now has

* Jefferson Co. vs. Timmel, 51 N.W. 518 (1952)

an active program to establish "stream encroachment lines" along the Connecticut River and to regulate all building within these lines. The establishing legislation has been sustained by the Connecticut State Supreme Court.

New York State has established the Lake George Park Commission with powers to zone land within one mile of the shores of Lake George to control commercial use.

The State of Wisconsin has developed a state-wide system of "quality corridors" within which various controls are applied.

Two American rivers, also important scenically and historically to their region and to the nation, have recently been served by outstanding planning studies and public action. Both the Hudson and the Potomac Rivers flow through valleys possessing a great range of features, from the most scenic natural assets to the intensely urban edges of great cities. For both, limits of control have been assigned that reach up to distant ridges.

The Potomac River Task Force, in its October 1967 report to Secretary of the Interior Udall, has called for action to embrace three zones along the Potomac: the river itself, the riverside, including all land in continuous view from the riverbank to a minimum of 500 feet, and the setting, defined as the land within view or within five miles of the river.

The Hudson River Valley Commission, established in 1966 by compact with the Federal government and the States of New Jersey and New York, has been given jurisdiction over the lands within one mile of the shore of the river and over lands or projects visible from the river and within two miles of the shore. Its jurisdiction includes the entire Hudson north of the southernmost tip of Manhattan Island.

Throughout the country, public action is taking imaginative and workable form to save and rehabilitate the river corridors of major metropolitan regions. It would be highly ironic if Boston, first American city to salvage river, were to lose it now to modern abuses, while other urban centers reserve the scenic qualities of entire valleys for posterity.

Revision of More Effective Control

Considerably more study must be given to the subject of controls over the urban edge of the Scenic Corridor. Nevertheless, it is appropriate for this report to make recommendations about the directions such study might take.

First, the Metropolitan Area Planning Council should define the geographical area of Boston's Scenic Corridor and the zones within it that require different sets of controls. The definition would be useful as a planning tool, even if it had no statutory authority.

This study recommends to the MAPC that Boston's Scenic Corridor be defined as reaching along the Charles from Watertown Dam to Boston Harbor, along the Muddy River from the southern edge of Jamaica Pond to Park Drive, and along the Fens from Park Drive to the Charles at Charlesgate. The definition could be explicit and emphatic about the importance of the connection between the Muddy and the Fens.

Three corridor zones parallel to the streams should be defined as (a) the river parkland, including the streams and ponds and the public parkland which surrounds them; (b) the urban edge, the frontage outside the borders of the river parkland, where urban development may have significant impact on the parkland or surrounding areas, including all scenic areas and

bluffs that are visible within a distance of one mile; and (c) the skyline, including the major skyline areas of Boston's regional core.

The river parkland requires perpetual protection. The urban edge requires a set of tools to guide development beneficially and to prevent development from encroaching on either the parkland assets or the assets of the scenic skyline. The skyline requires generally only to be left visible and exposed to its best advantage.

Along with the Scenic Corridor in Boston, it will also be wise to cover with the same provisions the entire length of the Charles, beginning at its source in Echo Pond, Hopkinton, and including the shores to a specified distance from the river. The entire valley of the Charles lies within the Boston metropolitan region; its scenic value and its history are important to Boston, the region, and the nation as a single entity, rather than as dismembered sections.

Second, the MAPC, in cooperation with all jurisdictions having interests along the Scenic Corridor, should develop recommendations for these jurisdictions on how they might more effectively protect the Scenic Corridor through existing controls over all lands within the river parkland and urban edge zones of the Corridor.

Many riverfront districts now zoned for manufacturing could be reclassified for business or other higher classes, or a narrow edge of land fronting the parkland or its adjacent parkway could be reclassified, leaving a screened manufacturing district in the rear.

Parkland of the Scenic Corridor is presently zoned together with adjacent districts, that is, for industrial, commercial, or residential use. It would

be preferable for all river parkland to be granted an "O" zoning classification like that recommended for the Washington area. In addition, strategic open space outside the publicly owned river parkland should similarly be classified and protected.

Acquisition of land and purchase of scenic easements are tools that have been in the possession of the MDC for many years. Although it has only employed land acquisition, the MDC, and individual communities as well, should consider the purchase of scenic easements in crucial frontage areas. Such actions would require strong cooperation and coordination among individual communities and metropolitan interests.

Third, the City of Boston can take immediate steps to protect its own Charles shoreline in the districts upstream of B. U. Bridge that are presently zoned for industry. It is recommended that, either as a new ordinance similar to the Park Frontages Ordinance or as an amendment to the Zoning Code, controls over use, setback, height, and other characteristics be imposed on properties fronting the Charles within 100 feet of the river roads or, where land is visible from the shore, within 500 feet of the river roads.

Fourth, the MAPC, in cooperation with Boston and its neighbors, should study alternatives for the establishment of a more effective framework of action in the Scenic Corridor than is now possible. Three framework alternatives are suggested here:

(a) The MAPC's existing powers of review and recommendation could be enlarged to enable it to carry out broader planning and advisory functions, in cooperation with local governments, the MDC, and other agencies, with regard to development within the urban edge.

(b) A Design Advisory Board, such as was recommended by the MAPC in 1965, could be established. Composed of leading design and planning professionals and affiliated with the MAPC, it would assume prerogatives of review over proposed developments on the urban edge and would submit recommendations to public agencies, local governments, and private developers for protection and enhancement of the Scenic Corridor.

(c) The Legislature could establish a Charles River Valley Commission, either for Boston's Scenic Corridor alone or, for the greater benefit of the region, for the entire valley of the Charles.

The major responsibility of the Commission would be to undertake a program of land acquisition and easement purchase to augment the open space of the river parkland, with final disposition of such acquisitions to the MDC or other operating agencies.

The Commission would also review and advise on proposed developments on the urban edge in order to insure the protection of the river parkland and the exposure of the skyline zone.

A necessary part of Commission activities would be coordination of its work with the metropolitan planning functions of the MAPC and with the administrative functions of the three park agencies that control the river parkland of the Scenic Corridor--the MDC, the Boston Parks and Recreation Department, and the Brookline Park and Recreation Commission.

Of the three alternatives, the alternative of a Charles River Valley Commission would seem to be the most potentially effective. However, given adequate public support, the expanded role of the MAPC or the establishment of a Design Advisory Board could serve equally well. The basic step, in any

case, is a public decision for effective action in securing the Scenic Corridor on behalf of Boston, the region, and the nation.

It should be noted that all three alternatives stress the power of review and recommendation over all projects planned by metropolitan and local agencies within the river parkland and the coordination of all such projects. This coordination is presently sorely needed.

Whatever action may be taken to establish a stronger framework for action along the Scenic Corridor, Boston, its neighbors, and the metropolitan and local agencies ought to begin developing more effective tools for guiding urban growth on the Corridor edges. Further study must be given to the problem and strong tools for solving it devised.

View 1--Transportation

Today the greatest danger to the parkland of Boston's Scenic Corridor is the unchecked construction and enlargement of metropolitan roads along the river shores. A number of major road projects, in planning or under active consideration by metropolitan and State road agencies, could seriously affect the Corridor's parkland and the public's ability to use it. If built as presently designed, nine major projects, discussed on the following pages, would consume an estimated total of approximately sixty acres of river parkland, one-tenth of the total parkland of the Charles Basin and the Muddy River.*

The projects belong generally to two classes: the Inner Belt and Expressway system, and the roads of the Metropolitan District Commission.

The Inner Belt and its associated expressway connectors will cross the Corridor at three points. If the system is sensitively designed in response to a policy that places emphasis on parks and recreation and on urban amenity in general, it can be compatible with the parkland and parkways of the Corridor.

Five projects involving the Corridor's roads (those running parallel to the river shores) include enlargements of the capacities of the various parkways under the title or control of the MDC at the direct expense of contiguous river parkland. Here the important question is not how to find a workable design but whether river parkland should be diverted at all for parkway road

*The estimate of acreage to be lost to construction is the sum of assumed roadway surfaces and areas that may be judged unusable or inaccessible because of construction, and excludes water surfaces. (Refer to Appendix .)

purposes and, if so, in what form and degree.

The river parkland of Boston's Seenie Corridor is an irreplaceable open-space asset of great aesthetic and recreational value. Widenings and other capacity enlargements might not bring as much added benefit to Boston as they would destroy. Besides the loss of valuable parkland, the enlargements could encourage a greater flow of vehicular traffic into the Boston regional core than the 1965-75 General Plan determined could be accommodated. If their construction constituted twin express roads on either side of the Charles, continuous from Watertown to the ends of Memorial Drive and Storrow Drive, they would be duplicative and excessive in terms of both public expenditure and transportation policy objectives. Capacity improvements on individual sections are useless when natural curves and other limiting factors in other sections cannot be eliminated.

What is vital is a policy for the parkways as they ought to be. In this context the role of the early parkway should be noted, that of providing appropriate drives through park areas for urban residents on their way to major outdoor recreation areas. With the evolution of the fast-moving automobile and the express regional highway, and with higher incomes and increased leisure time, recreation travel to outlying destinations is now commonplace. However, the same improvements in income and leisure time have also drawn Boston metropolitan residents to local recreation assets.

Residents, in fact, take more recreation trips within the region than outside it,* an indication that Boston's parkways will continue to serve as routes of travel--to whatever recreation assets lie along the river parkland.

*According to the 1966 Massachusetts Outdoor Recreation Plan.

Efforts to rehabilitate the deteriorated commercial roadside sections of the parkways could receive assistance through new State legislation. Federal aid under the proposed Scenic Roads and Parkways Program may provide for general rehabilitation and aesthetic enhancement. These steps and others will be possible if Boston and the metropolitan community are willing to accept the parkways of the Charles and Muddy in the role of roads providing a scenic and sometimes more leisurely alternative to the commuter; a scenic, architectural, and historic route for the visitor; and a path to the recreation and open-space assets of the river parkland for all who seek them.*

Inner Belt and Expressway Construction--Department of Public Works

1. Inner Belt-Charles River Crossing--Under present DPW plans, the Inner Belt will cross the Charles more or less at the B. U. Bridge site, either by bridge or by tunnel. A connector between the Inner Belt on the Cambridge shore and the Turnpike entrance in Allston is also planned. This secondary bridge, with five spans across the river, will slice across the Charles at an oblique angle and will destroy much of the valuable recreation open space of Magazine Beach, including the Riverside boathouse, the MDC swimming pool, and a great part of the picnic grounds and playfields; in addition to establishing a visual barrier of almost half a mile between Cambridge and Boston. Nine irreplaceable acres of Magazine Beach parkland would be lost.

Clearly, the construction of a secondary connector should not be attempted until every feasible alternative is studied that would avoid destruction of Magazine Beach and the river landscape.

* Compare the 1966 Hudson River Valley Commission Report: "There is a need for a system of roads devoted primarily to pleasure driving at leisurely and safe speeds, to enjoy the great variety and beauty of the Hudson River scenes, to visit . . . the numerous sites and structures of historic significance and architectural significance, to savor the countryside . . . along the River, to make driving the rewarding and pleasant experience it ought to be."

2. Inner Belt-Fenway Crossing--The DPH, working together with the Blue Ribbon Advisory Committee and design consultants, has greatly improved the early design for the restoration of this very sensitive part of the Scenic Corridor--the link between the Muddy River on the Riverway and the Fens.

However, under present plans, the restoration is only partial. The roadbed is not completely decked over; an open cut is planned west of Brookline Avenue. The tunnel section is too shallow to permit genuine restoration above.

Adoption of an alternative scheme would permit depression of the tunnel section deeply enough to accommodate the entire park above its deck. The park would thus be continuous and grade-separated beneath the Inner Belt-Riverway connector, Brookline Avenue, and Avenue Louis Pasteur and would include a complete path system.

An extension of the deck covering the tunnel would be necessary from Brookline Avenue west to the reconstructed MBTA Fenway Park station, to permit linking the Riverway section of the Muddy River with the reconstructed parkland over the tunnel. Only minor changes in horizontal alignment would be required.

Although possible more costly than the present DPH design, this alternative scheme would restore all of the environmental assets of this scenic and historic parkland to an important institutional and residential core area of Boston, would diminish the disruptive features of the Inner Belt, and would remove a key barrier to continuity of recreation and park uses throughout the Muddy River from Jamaica Pond to Charlesgate.

3. The North Terminal Area--The North Terminal Area is the main gateway to downtown Boston from the northwest, north, and northeast. In 1962 the North Terminal Area Study reported that 111,000 vehicles a day used the Central Artery, while 92,000 used Storrow Drive, moving in and out of the area. Policies developed by the Study sought a more equal vehicular distribution down the sides of the Boston peninsula, and traffic volumes were therefore projected for 1980 of an additional 15,000 vehicles a day on Storrow Drive on the west side of the downtown area and of only an additional 9,000 vehicles on the Central Artery, which curves around the east flank. The increase in movement on Storrow Drive would be facilitated by the construction of Leverett Circle Bridge, connecting Storrow with Route I-95, across the Mystic River Bridge.

In addition to the Leverett Circle Bridge, a complex expressway interchange was planned for the North Terminal Area, which would integrate the Cambridge and Boston (Central Artery) sections of the Inner Belt, Routes I-93 and I-95, the Leverett Circle Bridge, and arterial roads leading into the area.

If this interchange and the Leverett Circle Bridge are to be built, the design for them should be compatible with the development of recreational embankments and income-producing land use such as that recommended in View 2--Continuity of the River Parkland and in the North Terminal Area Study itself.

Nevertheless, three important questions remain unclear. The first is whether there are assurances that the actual design of the interchange and Leverett Circle Bridge as proposed will be compatible with public development and use of the embankments. Badly placed viaduct alignments, piers, and abutments could eliminate embankment development altogether.

The second question concerns the effect of the design of the interchange viaducts and the dam on environmental quality and recreational boating along the riverfront. If present plans are carried out, as many as eight individual viaducts may cross the Charles. They could be designed in a compact and esthetic way or in a confusing sprawl that would have a serious blighting effect on the riverfront.

The third question concerns the impact of the 15,000 additional vehicles that would seek travel between the North Terminal Area and Storrow Drive each day. One option would be to facilitate vehicular movement only in that section of Storrow Drive between Leverett Circle and Charles Circle, the west bank of downtown Boston. Ideally, no damage to Charlesbank Park on the shore side would result. But it is widely agreed that the extra traffic flow would affect Storrow as far west as Charlesgate and that the result would be either sustained greater congestion or the relief of this congestion by extensive widening of Storrow at the expense of Charlesbank, the Esplanade, and the bankment. In addition, new interchange ramps at Charles Circle (Longfellow Bridge), Arlington Street, and Dartmouth Street, as well as the straightening of the Drive between Charlesbank and Hatch Shell, would possibly be undertaken by the MDC.

The river parkland on the shore side of Storrow Drive is an asset that the city cannot afford to lose. It is strongly recommended that a solution be sought that would serve transportation and recreational open space needs equally well and that it be sought in advance of action on Leverett Circle Bridge.

Arterial Improvements--Department of Public Works

4. Watertown Bridge Interchange--Several alternative plans for arterial traffic are being considered by the Town of Watertown and the Department of Public Works. One or more solutions may include a two-level viaduct over the river at the site of the existing bridge, with important structural and land use changes on both sides of the Charles. It is urged that the selected plan be free of elements that would have adverse effects on the river landscape and that steps be taken within the scope of the project to improve riverside continuity and park edges.

Parkway Construction Proposals--Metropolitan District Commission

1. Greenough Boulevard Widening--Announced recently by the MDC, this project would appear to be potentially destructive to the scenic, tree-lined edges of the Boulevard and to the quiet beauty of the Watertown bluff along which the Boulevard curves. There is no significant traffic volume on this road that would warrant its widening; in fact, the wide arc of Greenough is bypassed by most motorists, who instead use North Beacon and Arsenal Streets as direct connections between Watertown Square and Boston. Greenough is therefore an excellent illustration of how a parkway or park road can serve as the leisurely alternative to heavy-duty arterials, and this function should definitely be preserved.

Actually, the real danger to Greenough is the ultimate linking together of new and widened road sections on the north shore of the Charles: Greenough Boulevard--Charles River Road (the Watertown Arsenal shore)--Greenough Boulevard Extension (recently completed in Cambridge upstream of Eliot Bridge)--and Memorial Drive. This would create a continuous expressway paralleling

that which the MDC is linking together on the south shore. If the new width of Greenough Boulevard should approximate the seventy-foot width common to other sections of MDC express roads, an estimated nine acres of parkland could be lost on the Greenough shore alone.

2. Charles River Road--Watertown Arsenal Shore--The MDC is currently negotiating with the General Services Administration for clear title to the approximately seventy-foot-wide strip of shore fronting the Watertown Arsenal now under "care and control" of the MDC. The MDC should attempt to acquire a much wider shore so that there will be sufficient land to accommodate landscaping of a permanent scenic edge or to develop the metropolitan park embankment that is proposed in View 2--Continuity of the River Parkland. In addition, if the MDC widens or reconstructs the existing Charles River Road at some future date, no land at all may remain for effective park use. Presumably an estimated six acres of land would be used or cut off by an MDC widening of the road to a width consistent with Greenough Boulevard Extension.

3. Nonantum Road--Soldiers Field Road Extension--Although originally conceived before the construction of the Turnpike, this project has recently been reactivated by the MDC with a budget of \$1,500,000 for improvements between Western Avenue in Brighton and California Street in Watertown. The route is composed of two parts: Soldiers Field Road Extension, which travels over the Brighton abattoir foreshore, and Nonantum Road, which reaches west to Watertown. Once widened, together with the Soldiers Field Road project described below, these roads would create a new expressway continuation of Storrow Drive upstream as far as Watertown Square and Route 16, at the great expense of parkland and the river's edge. Estimates based on early MDC schemes indicate that fourteen acres of park shore would be destroyed or

cut off along Soldiers Field Road Extension and approximately five acres of park shore would probably be lost along Nonantum Road, including all the narrow wooded edge.

4. Soldiers Field Road Widening and Underpass--Contract drawings are presently being worked out for the doubling in width of Soldiers Field Road between Eliot Bridge and Arsenal Street Bridge. An estimated five and a half acres of parkland would be taken. The underpass underneath Western Avenue at Arsenal Street Bridge would not only mar a large section of parkland but would also encroach on the water surface along the shore, if preliminary drawings are followed.

Traffic volumes submitted by consultants to the MDC do not bear out that a doubling in width of road is necessary. As in the case of other MDC projects described on these pages, there has been no clear justification for developing a continuous high-capacity express road along one shore of the Charles, let alone two. Certainly any benefits would accrue mostly to commuters, while Boston and metropolitan users of this valuable and scenic park and recreation area would stand to be the losers. In addition, there are implications of conflict with the Turnpike, the primary road arterial system, and the radial expressways that should certainly be considered before valuable parkland is irretrievably lost.

It should also be noted that a thousand-foot strip of Soldiers Field Road parkland is now being taken for road-widening within the contract for a new pedestrian overpass at Telford Street. The road widening is not an intrinsic part of the overpass project, although it is part of the 4000-foot-long widening project that will come up for contract approval in 1968. Because of the inclusion of widening in a basically unrelated contract, it

has been difficult to identify and evaluate the significant loss of parkland that is involved. Moreover, the MDC has announced ten future pedestrian overpass projects which will similarly include road widenings and channelizations. This practice will seriously hamper public scrutiny of proposed diversions of parkland for highway use.

5. The Jamaicaaway--The MDC plans for the Jamaicaaway have been revised to reflect local needs as expressed by Boston and Brookline. It is hoped that continuing cooperation in the development of the plans will lead to an enlightened and advanced example of scenic parkway restoration in the United States. No location would be more fitting for this form of action than the Jamaicaaway, which, together with the Riverway, was the first American parkway to be designed in the modern style. Plans should include restoration of the central parkland, with free-flowing river, park, and path between separated northbound and southbound roadbeds; preservation of existing scenic turns in the Jamaicaaway; minimization of widenings; protection of scenic bluffs, ponds, and wooded edges and the generally unique landscape; and at the same time, improvement of safety through a one-way traffic system and appropriate signalization.

Recommendations

1. The Commonwealth should make clear, by statutory action if necessary, that parkways are a different class of road from expressways and arterials. The park roads of the Scenic Corridor should be designated scenic parkways, to serve as more leisurely options to other routes, along the edges of the Corridor.

2. A moratorium should be declared by the MDC on the diversion of river parkland along the Charles and the Muddy for widenings and other capacity-

increase changes to the metropolitan parkways. Such a moratorium was suggested by the MAPC in 1965 to protect parkland for "open-space, recreation or conservation use."

3. The MAPC, as the State's coordinating planning agency, should be required to assist in determining the characteristics of all future State-sponsored road projects within the river parkland.

4. The road-building powers of the MDC, which were originally legislated in an age that did not anticipate the full impact of the automobile, should be amended to resolve the conflict within the MDC between concern for park development and concern for road construction.

5. Because passage of a Federal scenic roads and parkways program can be expected within the next few years, the Commonwealth and local jurisdictions should be prepared to submit applications to any such program for aid in commercial roadside rehabilitation and for general aesthetic improvements to the parkways of the Corridor.

6. Arterial streets in Boston and neighboring communities should be improved, with Federal funds if they become available, to relieve those sections of the parkways which presently serve as arterial connectors. Trucking, buses, and other commercial traffic on the parkways should continue to be restricted.

7. New park road construction, where needed, should be kept as far from the river shore as possible, to prevent conflict with river-shore park use and recreation. The Watertown Arsenal shore and the North Terminal Area are two places where it is vital that road alignments be chosen with ample regard for park and recreation uses.

8. The deleterious effects of past road construction projects should be amended whenever possible. Restoration of the continuity of parkland, paths, and stream should have high priority in project funding and design, especially at the intersection of the Jamaicaway and Route 9 and at the Inner Belt crossing of the Fens.

CHAPTER III--SEVEN VIEWS OF THE RIVER LANDSCAPE.

View 5--Recreation on the Shores

Centrally situated in the Boston regional core, endowed with scenic landscape and riverfronts, possessing many areas that have been developed for recreation and outdoor enjoyment by close to a century of public investment, and leading along valley paths and waterfront edges to other recreation areas of metropolitan and regional significance, the Charles River Basin and the Muddy River represent a priceless outdoor recreation resource in the center of the region--a resource which should be preserved, rehabilitated, and expanded through additional land acquisition and improvements. Only the Mystic River Basin and the islands and shores of Massachusetts Bay possess similar potential. At present, however, no area has as great a variety of related water and land recreation assets so accessible to the heart of the metropolitan population.

Public open space can be treated and used in many ways. Some areas in the public domain are rightfully conserved in their natural state. Others are landscaped in a way that simulates natural growth but is more ordered and more carefully arranged, like the "park" of an English estate. Other parts are used for various forms of recreation. Some kinds of recreation, like fishing and bicycling, require no public investment or preparation; others, like tennis or baseball, demand construction of suitable facilities.

As well as a distinction between park and recreation use, there is often a conflict between park and recreation use. A park, as natural open space where the individual can experience quiet and respite from the tensions of the city, is easily intruded upon by the activity of competitive sports. However,

by careful planning and appropriate design, enlarged areas for both park and recreation use can be established on the shores of the Charles and Muddy Rivers without mutual interference and on lands which are suitable to each of them.

Recreation Needs

The need for additional recreation areas in the Boston region has been demonstrated by Federal, State, and metropolitan planning studies.

The 1962 Report of the Outdoor Recreation Resources Review Commission, the 1965 Open Space and Recreation Study for the Boston Region prepared by the Metropolitan Area Planning Council, and the 1966 Massachusetts Outdoor Recreation Plan of the Department of Natural Resources have all borne out the fact that the supply of recreation land in the Boston metropolitan region has fallen far behind demand.

The population of the Boston metropolitan area will greatly increase by the year 2000, from 3.4 million people in 1965 to an estimated 5.5 million people at the turn of the new century. (In 1876, the first operating year of the Boston Parks Commission, the population of the city of Boston was under 325,000.) According to the MAPC, developed land in the Boston area will increase from 435,000 acres in 1960 to a total of 698,000 acres in the year 2000. (Much of this land consumption will be within or close to the Boston core.) During the same period the MAPC estimates that the deficiency in open space recreation land in the Boston region will increase from 28,000 acres in 1960 to 70,000 acres in the year 2000.*

* Including in-city parks and play facilities, county and metropolitan regional parks, and state parks.

In other words, while open space becomes less available, the unfulfilled needs for additional recreation lands grow even greater. And while we hope that new land will be acquired for parkland and scenic open space throughout the Boston region, strong efforts should also be made for significant additions where they are needed most--in and near the Boston core.

Besides the inadequate supply of outdoor recreation areas in and around the Boston metropolitan area, the most compelling reason for attempting to provide sufficient recreational opportunities close to home is that a large part of the metropolitan population finds it difficult to travel.

Despite the great advances in automobile and highway technology, 48 percent of all households in Boston in 1960 were without automobiles (compared to New York City, with 53 percent of households without cars). In Boston and in other central parts of the Boston region, the densest areas house those people who are most dependent on public transit and short walking and bicycling distances to reach nearby recreation areas. Also, in the future it may be increasingly difficult to reach outlying weekend areas in view of greater congestion on available roads. Shortened work-days and flexible work schedules that permit single days off will also raise demands for recreation opportunities close at hand during the week, day and evening. According to the ORRRC report, the metropolitan population "must get most of its recreation in the metropolitan region, and for all practical purposes, the existence of extensive facilities somewhere else has little compensation for lack of them at home."

The 1966 Massachusetts Outdoor Recreation Plan has found that of six regions within the Commonwealth, the Boston area has the greatest percentage of residents engaging in outdoor recreation near their homes rather than

outside the area. Six Boston residents seek recreation opportunities near their homes for every resident that engages in a vacation trip or outing.*

The MORP has surveyed the number of Boston residents engaging in specific recreation activities.** The ten most popular outdoor recreation activities among the people of the Boston region, remarkably, are also particularly suitable to the recreation areas of the Charles and Muddy River parkland. They are, in order of popularity, walking, pleasure driving, sightseeing, competitive outdoor sports, swimming, bicycling, picnicking, attending outdoor sports, fishing, and boating. The fifteenth most popular activity, attending outdoor concerts, is eminently well provided for in the Boston Pops summer concert series at Hatch Shell on the Esplanade. An advance in ice-skating to tenth place is anticipated, and participation in most of the top ten activities is expected to double by the year 2000.

Park Needs

There is a great degree of overlap between recreation needs and park needs. Several of the ten leading recreation activities (for example, walking, bicycling, picnicking, fishing, and boating) are fully compatible with park use. Pleasure driving and sightseeing can be realized on the scenic roads of the Corridor without any interference with pedestrian enjoyment of the park, although in many instances today car-pedestrian conflicts do exist. Swimming and ice-skating can be compatible with park use, but the design and siting of facilities for them may be damaging to the enjoyment of nonparticipants. Outdoor sports facilities for team competitions, however, are fre-

* Massachusetts Outdoor Recreation, Massachusetts Department of Natural Resources, prepared by Edwards and Kelcey, p. 112, 113.

** See Table

quently not compatible with park use because of their large area requirements, crowd and noise factors, structural facilities, and night-time lighting fixtures.

Generally speaking, park use along the Charles River Basin and the Muddy River should be granted priority over sports facilities. River parkland possesses unique natural qualities that cannot be replaced by those of parks elsewhere in the city. Sports facilities, on the other hand, technically can be built on any open land, wherever conditions warrant. Some facilities, in fact, such as indoor skating rinks, ought to be constructed closer to those centers of population which they are designed to serve.

Outdoor sports facilities should be accommodated only in broad sections of the river shore, where no prior park use has been established and where the dimensions of the section are sufficient to encompass both the facility and a generous embankment or other ribbon of parkland for general park use and movement. Furthermore, only sports facilities that serve outdoor activities and require minimum structural elements should be provided.

As population increases in low-density areas along the Charles and the Muddy and other open space is consumed by urban development, the importance of the publicly-owned river parkland for park use becomes more apparent. Efforts to give better form to our cities have only recently begun, and the effects of urban sprawl have continued to eliminate spaces that might have otherwise become valuable parks. The people of Boston and the region may therefore be expected to rely increasingly on the rivers and their shores for general park enjoyment.

An indication of future park needs is obtained from the 1965 IMRC Open Space and Recreation Study. Of the 70,000 additional acres of recreation land needed for the metropolitan region by the year 2000, approximately 52,000 acres can be projected for parks and natural areas, with a balance of 18,000 acres for intensive use. That is, three acres of general park area should be acquired for every one acre of intensive-use area (based on the Bureau of Outdoor Recreation standards of 15 acres of park and 5 acres of intensive-use area for each 1,000 urban inhabitants).

Conservation of unique natural features is an established need of the metropolitan region. In the broad sense of the word "conservation," the entire open-space network of the Charles and Muddy River parkland should be conserved; in the specific sense, there are several natural wetland areas that should be recognized as having conservation status: Hell's Half Acre shore in Cambridge south of Eliot Bridge, the reed-lined waterways of the Fens, and the wooded areas of Ward's Pond and Leverett Pond in Olmsted Park.

Preservation of almost all of the parkland in its present form is extremely desirable. Some of it deserves preservation in recognition of its historic design (the curving edges of the Fens, the character of the Riverway and the Jamaicaway, the remnant of Charlesbank Park--all designed by Frederick Law Olmsted). Most parts should be preserved for their generally excellent aesthetic value, if for no other reason.

Some parts should be preserved simply because people have come to enjoy them as they are. The hazards of excessive improvement to parkland are almost as great as the dangers of apathy and neglect. The public has a proprietary sense of pride in its parkland, and while the urban fabric is changed all

about him, the individual would care to keep his familiar and favorite corners of parkland as true to their nature as they possibly can be. The most widely publicized objects of such fidelity are the sycamores of Memorial Drive and the Victory Gardens in the Fens, but the same attitude is true for perhaps tens of thousands of Boston area residents, who have laid claim at one time or another to a favorite bench or a tree or a stretch of grass on the Esplanade.

Recognition of the need for both conservation and preservation, however, should not cancel the need for rehabilitation and enhancement of run-down, neglected parkland. Comprehensive tree-planting and remedial landscaping plans should be implemented by the MDC and the parks and recreation departments of Boston and Brookline. Further budget allocations should be made for improved maintenance and clean-up programs. (Much has already been done in recent seasons by the three agencies, and also by several of the local universities, to enhance the appearance of the parkland. BRA staff members have also assisted in improvements to the Fens, within the framework of the Fenway Urban Renewal Project.)

Programs should be provided that will enliven the parks, attract public attention and concern, and provide the public with genuine park benefits. To bring this about, the three park agencies should enlist the support and participation of private and civic groups. The concert season at Hatch Shell could, for example, be extended by programming other orchestras during August and September, after the Pops season is finished. The Fens, situated as it is along the western end of the Boston core and in the heart of a great institutional area, could serve to accommodate a great variety of urban park programs: noontime concerts, outdoor spring and fall art shows, art "happenings," folk

concerts, flower shows, and so forth.

To utilize the parkland fully, the public should have free and safe access to it at night as well as by day. At present the only sections equipped with path lighting are the Esplanade, the War Memorial area in the Fens, and the eastern edge of Jamaica Pond. Lighting standards should be installed throughout the Muddy River parkland and along the shores of the Basin. Not only will lighting encourage the public to patronize the parkland after dark in safety, but it will also dramatically enhance the beauty of the river shores, the tree canopies, and the parkland as a whole. Such action should also dispel public apathy about the parkland and reinforce public support for its rehabilitation.



CHAPTER III--SEVEN VIEWS OF THE RIVER LANDSCAPE

View 6--Recreation on the Rivers

In recent years several excellent reports have been prepared on recreational boating on the Charles. The most recent is The Mystic, Charles and Neponset Rivers, prepared by the MAPC for release at the end of 1957. In 1965 a report was prepared by the Charles River Basin Study Committee, representing the MDC, the DFW Division of Motorboats and institutional and private boating interests. In it, specific recommendations were tentatively proposed for resolution of conflicts between powerboats and other boating uses and for greater recreational use of the Basin. Charles W. Eliot II presented a series of comprehensive recommendations on the river to the MDC in 1961.

The present study has made careful consideration of these prior reports, and in part its recommendations derive from them.

The Charles River Basin has become the outstanding inland recreation waterway of the New England states. Even before the construction of the Charles River Dam, the tidal waters of Back Bay served canoeists, helmsmen, and rowers. The first boathouses for shells were constructed on the Charles before 1860. By 1876, the year of the establishment of the Boston park system, the waters of Back Bay had become extremely popular for recreational boating. At the historic Faneuil Hall meeting in June of that year, at which strong public support was voiced for the proposed Fens park and the Charles River embankments, Richard Henry Dana, Jr., spoke with both humor and pride of "this great Back Bay . . . a sort of inland sea . . . where every gentleman may keep his boat, and every boy may keep his scull; and perhaps it is just as well a boy's skull should be there as anywhere else a large part of the time."



With the completion of the Charles River Dam and the decrease in commercial navigation on the river, use of the Basin today is almost exclusively for water recreation. Today there are more than eight hundred boats of all types berthed in rowing boathouses, powerboat clubs, and sailing pavilions in the Basin. These include ten rowing boathouses owned by the universities or private associations; four sailing pavilions used by five universities and colleges and by Community Boating, Inc., a public service group; four powerboat clubs; and two public launching areas administered by the Metropolitan District Commission.

The recreational uses for which each section of the Basin is best suited are determined mainly by the topography and geography of the River. Above B. U. Bridge (referred to in this report as the "Upper Basin") the stream is relatively narrow and cannot be used for sailing, although it is used extensively for rowing and as a passage for powerboats from upstream clubs on their way to and from the Charles River Dam lock. Below B. U. Bridge (referred to in this report as the "Lower Basin") sailing is the primary activity during the warm months and regatta rowing during the late spring and early fall. Two of the four Charles River powerboat clubs are situated in the lowest section of the Basin, in convenient proximity to Boston Harbor and coastal waters.

Increasing Demand

The extent to which the river is used at peak hours has changed dramatically since 1959, the date of the last comprehensive survey of recreational boating on the Charles.* A survey of current boating use, as presented in Table , shows that the greatest estimated increase in activity has been in

* Maguire & Killam, 1959

the section of the Lower Basin between Longfellow and Harvard Bridges (see Map), mainly because of the increasing popularity of sailing and the availability of sailboats at two well-administered pavilions (Community Boating and MIT Sailing) throughout the summer. The Community Boating Pavilion alone served an estimated 70,000 users in 1967.

The second highest increase in activity has occurred in the section of the Basin between Harvard Bridge and B. U. Bridge as a result of the expanded rowing program and the new facility of MIT on the Cambridge shore.

Table shows that little expansion of either facilities or programs has occurred in the part of the Upper Basin between B. U. Bridge and Arsenal Street Bridge, three miles up the river, and none in the uppermost section, west of Arsenal Street to Watertown Dam. The table, however, does not include figures for outboard motorboat activity, since no accurate counts have been made since the recent development by the Water Access Board of launching sites at Magazine Beach and Nonantum Road. It has been roughly estimated by the Corps of Engineers that over two hundred outboards may be active on the Basin on a single peak summer day.

Conflicts of Use

The increased use has resulted in conflicts between power boating and rowing (shells, sculls, other rowboats, and canoes) in the Upper Basin above B. U. Bridge, the narrow part of the river. There are two reasons for this conflict. The first is the practice of mooring powerboats in the open channel in the vicinity of Nonantum Road and Watertown, which inhibits the use of this area of the river by shells and sculls for practice heats and general recreations. The second is the use of the river for "through traffic" from the upstream clubs to Boston Harbor, a distance of eight miles and three quarters of



an hour to an hour and a half of running time. As well as creating inconvenience for powerboat owners (it has been estimated that nine out of ten sailings from the upstream powerboat clubs have the Harbor and coastal waters as their destination), this travel also results in considerable conflict with the shells, sculls, and other rowboats in this section of the river. Powerboats at times create hazardous wakes and may swamp the lighter craft. There is also the interference with practice and racing that is inevitable when powerboats pass shells or sculls in the narrow river. In addition, damage to powerboats berthed in slips, and to the slips themselves, has resulted from wash generated by passing powerboats.

Projections of the demand for recreational boating in the future indicate that conflicts which now exist may grow to much greater proportions in future years. The Outdoor Recreational Resources Review Commission has predicted that participation in recreational boating activity in United States will more than double during the next thirty years. Along the Charles an increase of interest in rowing and sailing, not only by those colleges and universities that presently do not have facilities on the river, but also by high schools and the public in general, can be expected and should be provided for. The 1966 Massachusetts Outdoor Recreation Plan estimated that the number of persons engaged in boating of all kinds in the metropolitan area on an average weekend day during the peak season will increase from 22,800 to 1960 to 63,500 in the year 2000.

It is generally agreed that most powerboat owners on the Charles, including the majority of outboard operators, are responsible boatmen and that many conflicts occur despite their caution. To some degree, stricter enforcement of MDC regulations might help the situation, but the inherent difficulties of

the narrowness of the river and the distance of the upstream powerboat facilities from Lower Basin and Harbor destinations indicate that an over-all solution would be desirable, a solution that can provide greater benefit for all boating interests--powerboating, sailing, and rowing.

More Boating for the Public Through Zoning

By appropriate zoning, that is, by establishing priorities for certain recreational uses in each section of the Basin, conflicts can be avoided and much greater use made of the waters of the river. There is room on the Charles within the existing Basin for an increase in boating activity of perhaps fifty percent, provided that zoning policies be established and enforced.

Inasmuch as the MDC has been empowered by the Legislature to regulate the use of the Charles River, the MDC can and should, after consultation with the five communities and the private and institutional interests along the river, institute zoning regulations.

Appropriate zoning of the river would be as follows (refer also to Map).

<u>Zone</u>	<u>Description</u>	<u>Priority Use</u>
Zone 1	Charles Harbor (North Terminal Area Riverfront)	Powerboating (all new facilities)
Zone 2	Charles River Dam to Longfellow Bridge	Powerboating (additional facilities)
Zone 3	Longfellow Bridge to Harvard Bridge	Sailing, rowing
Zone 4	Harvard Bridge to B. U. Bridge	Sailing, rowing (additional facilities)
Zone 5	B. U. Bridge to Arsenal Street Bridge	Rowing
Zone 6	Arsenal Street Bridge to Watertown Dam	Rowing (additional facilities)

The key achievement of a successful zoning policy would be the shifting of all or most powerboat activity downstream to the vicinity of Charles River Dam, below rowing and sailing activity. This shift would resolve the two major sources of conflict: powerboat traffic and open mooring upstream. The powerboat operators would benefit because eight miles of travel at limited speeds between upstream berths and the Harbor would no longer be necessary, and because downstream berths would be close to marine services, boat and accessory sales, and various urban amenities. The general public and institutions with rowing and sailing interests should benefit by the liberated capacity of the stream for new facilities and expanded use.

There is presently a degree of interest among some of the boat owners of the upstream powerboat clubs in relocating to a site in the Lower Basin closer to the Harbor. In Zone 2 the only existing powerboat facility is the Charlesgate Yacht Club, and there is room for two more powerboat berthing facilities of similar size. The two upstream clubs should therefore be encouraged to relocate, with the support of the MDC. At the same time the Water Access Board should agree to construct new launching facilities in Zone 1 in conjunction with redevelopment of the North Terminal Area waterfront. Following relocation, the existing launching ramps at Magazine Beach and Nonantum Road could be phased out.

The relocation of powerboats to Zones 1 and 2 should not deny them enjoyment and use of the Lower Basin (Zones 2, 3, and 4), although stronger regulations to insure the safety of sailboats and rowing craft should be enforced by the MDC. Movement of powerboats upstream of B. U. Bridge, however, should be restricted.

Until such time as the upstream powerboat clubs can be relocated, effi-

cient use of the stream may be achieved through enforcement of regulations such as the following:

Mooring on the open channel of the upper river should be prohibited in order to prevent conflicts with rowing.

In the Upper Basin berthing in slips should be required instead of mooring, but the number of slips should be limited in order to reduce the volume of powerboat traffic.

Winter boat storage should be prohibited on Sunrise Island, a valuable scenic resource. Boat storage facilities could be provided on part of the Watertown Arsenal shore area, as recommended by the 1967 MAFC report.

Rental fees for land used by powerboat clubs in the Upper Basin should be set by the MDC at levels comparable to those of powerboat clubs in Boston Harbor.

Decrease in use of the Upper Basin by powerboats would permit significant increases in activity by other types of boats. In Zone 4 at the present time only eight sailboats, owned by Boston University, are presently accommodated. There is room in this area for fifty sailboats or more. In Zone 5 there is room for much more boating activity than takes place now, especially for canoes, rowboats, and sculls. The boats located here would, of course, also be able to use Zone 5 and the Lower Basin, according to need.

The one section of the Charles River below Watertown Dam that is not used at all for recreational boating today other than as an alleyway between the Basin and the Harbor is the channel of the North Terminal Area (Zone 1). Proposed plans for the area, the new Charles Harbor, have been described in the preceding section, View 5--Recreation on the Shores. The renewal of this blighted riverfront would make way for a major revitalization of boating opportunities. In addition to the two relocated launching ramps, there is room to berth up to two hundred small boats in a public marina and to provide ex-

cursion docks, public landings, other public and private water recreational facilities, and related onshore commercial and public services.

The great increase in recreational boating activity forecast by the OMRC and by the Department of Natural Resources suggests that berthing facilities centrally located in the Boston core would serve Massachusetts residents and tourists who want to visit the outstanding attractions of the city. This possibility is particularly meaningful in terms of the proposed United States bicentennial celebration in Boston in 1975-76. The North Terminal Area would be an important site for public services and such commercial enterprises as hotels or "boatels," theater and entertainment facilities, shops, and restaurants, suitably integrated with the public embankments. The proximity of the area to North Station, public transit, Government Center, and the Central Business District could make appropriate land-use development fronting on the embankments attractive to investors, and the creation of a joint comprehensive plan by the Commonwealth, the City of Boston, and the City of Cambridge would insure its quality.

In order to take full advantage of the freed potential, new facilities should be constructed in the Basin. Up to four new boathouses could be established for rowing. Most should be open to the public at large, but one or more might be shared by college, university, and high school associations under cooperative arrangements. Near Kenmore Square a new sailing pavilion should be constructed for both college and public use, to take full advantage of the Zone 4 section of the Lower Basin.

An improved network of public and excursion landings should be built. At present, there are seventeen boat landings used by the general public along

the shores of the Basin. Besides being useful to boatmen, landings enliven the edge by bringing activity and interest to the shores and often provide architectural delight as well, as in the case of the granite steps and balustrades of the Esplanade Landings.

Development of Charles Harbor as the final link in the Scenic Corridor between the Basin and Boston Harbor would create another great magnet for tourist excursions, which are now conducted on the Charles during the summer months. A single excursion boat departs hourly from the public landing opposite Pinckney Street, sailing to Watertown and back. With the construction of the Kennedy Memorial Library, however, a great increase in demand for excursion travel from downtown Boston to the Library may be expected, and the MDC should arrange for the construction of a public landing on the Cambridge shore in the vicinity of the Library. The Boston Waterfront, presently being redeveloped, could serve as one terminus of scenic excursions and the Kennedy Memorial Library as the other, with intermediate stops scheduled according to demand, and extended trips to Watertown.

Other Activities on the Charles and the Muddy

Most increased boating activity will take place on the Charles, but the Muddy River can be used more effectively for recreation than it now is, especially for rowing and fishing at Leverett Pond and in the Fens. Both the Charles and the Muddy are severely polluted. A comprehensive program geared to insuring a "B" quality classification in both streams might restore swimming to the Charles and would certainly improve fishing, boating, and general activities on both rivers.

In 1960 there were 250,000 Boston area residents who claimed fishing as their chief sport.* At present, because of pollution, fishing opportunities on the Charles and Muddy Rivers are limited. With abatement of pollution (and construction of fish ladders on upstream dams), many species can be expected to return to the Charles to spawn. Most warm-water species, presently keeping a safe distance upstream, should also return to the Basin once its waters are restored to higher quality. On the Muddy River, as conditions improve, desirable species should also be restored.

To insure the growth of desirable species populations, however, the Massachusetts Division of Fisheries and Game should consider stocking the Basin, as alleviation of pollution proceeds. At present, along the Muddy only Jamaica Pond is stocked, but Leverett Pond should also be designated for stocking.

The surfaces of many sections of the Muddy River and some parts of the Charles freeze in winter. Although the MDC has constructed a number of indoor skating rinks in the metropolitan area that are well-attended, skating outdoors on natural ice is still an extremely attractive and enjoyable sport and should be accommodated at suitable points along the Muddy and in the lagoons of the Esplanade, under supervision and regulation by MDC or Parks Department personnel.

* According to the National Survey of Fishing and Hunting.

CHAPTER III--SEVEN VIEWS OF THE RIVER LANDSCAPE

View 7--Pollution

The pollution problems of the Charles River Basin and of the Muddy River are inseparable. Pollution abatement in the Charles, in fact, cannot succeed unless it is coordinated with controls for the Muddy. Moreover, there is no single measure that by itself can achieve the effective abatement that is needed to restore the waters of the Charles and the Muddy to the quality they once possessed. The following interdependent steps are essential to solving the problem:

Elimination of direct discharges into the streams

Diversion of sewer overflows

Systematic separation of combined sewers

Low-flow augmentation

Flood control improvement

Debris clearance

Elimination of Direct Discharges into the Streams

Although domestic sewage is not directly discharged into the Charles River Basin and the Muddy River, industrial effluents enter at several points in the Basin. Heated cooling waters of two electric power plants in Cambridge may also constitute thermal pollutants. Oil and other lubricant wastes enter the Basin through drains from trucking depots, railroad yards, the roadways of the stream edges, and fuel depots on Broad and Lechmere Canals.

The waste effluents of all railroad yards, trucking depots, and fuel depots can be made relatively clean by having drains outfitted with oil sepa-

rators so that run-off can be safely let into the Basin without contamination. The Department of Public Health and the Metropolitan District Commission should seek enforcement for the installation of such separators. Industrial effluents should also be strictly controlled, and State and Federal pollution control measures should be immediately invoked to make this possible. The MDC already holds broad powers for the prevention and abatement of pollution.*

The effects of the hot coolant discharges on the ecology of fish and plant life in the Charles should be thoroughly investigated and appropriate measures recommended by the authorities presently studying the watershed under the coordination of the Corps of Engineers.

Sewage is directly discharged into the Charles River upstream of Watertown, however, and also into the Charles River estuary below the existing Charles River Dam.

The sources of pollution both within the Basin and upstream of Watertown are an important focus of the current Charles River Watershed Study of the United States Army Corps of Engineers. The recommendations of the Corps will incorporate the investigations of the Federal Water Pollution Control Administration and other Federal, State, and local agencies. It is strongly hoped that the reports of these agencies will propose effective means of abatement of pollution in the rivers.

The discharge of sewage below the Charles River Dam, which includes effluents from the Boston Marginal Conduit, Cambridge sewers, and railroad yard

* "The commission may order the removal of all sewage and other polluting matter or factory waste as a common nuisance from the Charles river and its tributaries below Waltham and from the Charles river basin; and no sewer, drain or overflow or other outlet for factory or house drainage or for any other drainage shall hereafter be connected with said basin or the river below Waltham without the approval of the commission." Massachusetts General Laws, Chapter 92, Section 76.

and trucking depot drains, will need to be completely eliminated before completion of the proposed new dam at Warren Avenue. Failure to do so would allow sewage to be trapped and diffused back into the Basin. It is recommended that complete plans for sewer outlet relocations be prepared by the MDC before it proceeds with construction of the dam.

Diversion of Sewer Overflows

Although domestic sewage is no longer directly discharged below Watertown, some sewage enters the Basin and the Muddy River through overflow outlets during storm and flood periods. Because of the high intensity of pavement run-off flows during downpours and the fact that storm drains and sewers are merged in combined systems in older parts of Boston and neighboring communities, overflows carrying some raw sewage still occur. There are approximately forty overflow outlets along the Basin and the Muddy River.

The MDC, which is responsible for collecting and disposing of the sewage of the Metropolitan District communities, has planned various measures for relief of the sewage load. One such measure, currently about to be undertaken, is the construction of a 1,000,000-gallon detention tank at Magazine Beach. This facility will, in effect, tap a large part of the metropolitan system (the North and South Charles Relief Sewers and the Brookline Sewer) and relieve pressure on it during storms. According to the plan, overflows into the Charles will consequently be diminished or eliminated during storm run-off.

If the plan is completely effective, the only overflow from the North and South Charles Relief Sewers and the Brookline Sewer should be the excess at the Magazine Beach facility during peak storm run-off. Since sludge will first be removed and returned gradually to the sewer following the storm and the storm period overflow itself chlorinated before release to the Charles,

this facility should yield marked benefits.

(7)

On the other hand, overflows on the Boston side of the Basin--several to the west of Charlesgate and others along the Boston Marginal Conduit of Back Bay--will not be alleviated by the Magazine Beach facility. It is recommended that as rapidly as possible the capacity of the Boston municipal system be enlarged by the construction of an additional relief sewer or by the separation of the combined lines into storm sewer and sanitary sewer systems.

Along the Muddy River, several overflow outlets in Boston and several in Brookline ought to be diverted promptly to relief sewers joined with the metropolitan system. The Stony Brook sewer diversion gates are still opened in times of storm to permit overflow into the Fens, a precautionary measure that introduces significant quantities of sewage. This step is taken because of the inadequate capacity of the existing sewer system along the Fenway and Back Bay.

Systematic Separation of Combined Sewers

It has been the policy of the BRA to install separate storm and sanitary sewers in urban renewal projects, a measure also advised by the Department of Housing and Urban Development. Separation of the entire Boston municipal sewer system and separation of the combined systems in neighboring communities, although costly, should be undertaken, since it is the only way in which precipitation, now drained as waste to the Harbor, can be recovered by the Charles. As separation is achieved throughout the metropolitan area, overloading of the existing sewer system by storm run-off will be proportionately reduced. This, in effect, will constitute an increase in capacity of the existing system to carry sanitary sewage.

Storm run-off is not without contamination problems of its own. In the spring, winter road-salts are ultimately washed into the Basin. During all seasons of the year, lubricants and various other contaminants are also brought into the Basin by run-off. Despite such contamination, however, storm drain separation has the one very important benefit of restoring watershed flow to the open streams of the Charles and the Muddy, the very flow that until now has become progressively lost into the sewers (ultimately to the Harbor). This loss is directly related to the serious pollution problems associated with low flow in the streams.

Low-flow Augmentation

The low flow in both the Charles and the Muddy is the direct result of urbanization throughout the Watershed. Water sources have been heavily tapped for industrial and domestic use, asphalt surfaces conduct run-off into sewers, and the sewer system itself absorbs ground-water, thus further depleting sources of surface flow. 10

Low flow has intensified the effects of other pollution factors. Dilution of the pollutants is insufficient, their concentration increases, and the rate at which they are washed out to the Harbor declines. The temperature of the streams rises, decreasing the dissolved oxygen content and increasing the rate of fermentation. Nitrates, which are fermentation products, reach higher concentrations and in turn promote the growth of algae and duckweed, which yield noxious odors in decay and produce undesirable coloration.

During dry periods, the MDC is at present authorized to release up to fifteen million gallons of water a day from Quabbin Reservoir to augment the flow of the Charles. Increased tapping of this source, within the Connecticut River //

Watershed, cannot be considered a long-range general solution since future urban growth along the Connecticut will be given first priority in water use. The Boston region might expect further temporary relief for flow increase from the Connecticut River Watershed and perhaps the Merrimac River Watershed, but eventually the problem will revert to one of finding more efficient exploitation of water sources within the Charles Watershed itself.

One effective measure may be the creation of reservoirs in the Charles Watershed to collect excess flow during high run-off periods for gradual release during periods of low flow. The concept of such low-flow augmentation reservoirs is being considered by the Corps of Engineers in their present study of the Watershed, and it is hoped that reservoir construction in suitable locations will eventually help alleviate pollution. 12

In the Muddy River-abatement of foul odors and some pollution through low-flow augmentation should not be difficult to achieve, because of the relatively small additional flows of fresh water necessary to overcome stagnant conditions during dry summer periods, when objectionable odors are noticeable. Several alternative water sources are possibly available for augmentation purposes. Spring and storm run-off into Jamaica Pond, although generally not abundant, could be retained for later release by raising the Pond's overflow level. 13 The moderate slopes that surround the pond would make this feasible, subject to the absence of significant seepage through the slopes.

A second alternative would be the release of waters to the Muddy from Quabbin Reservoir, Cochituate Reservoir (from which waters have been released into the Muddy in the past), or other sources. The waters could be released either into Jamaica Pond or directly into the Muddy. For such action, legislation by the General Court would be necessary.

Separation of combined municipal sewer systems in Boston and neighboring communities will also augment low flow, as discussed above, by restoration of storm run-off to the streams.

Flood Control

Besides the introduction of sewage and other pollutants into the streams, the inadequacy of the flood control facilities of Charles River Dam is the greatest single pollution factor in the Lower Basin. In advance of approaching storms, the MDC is forced to lower the water level of the Basin in order to obtain additional flood storage capacity as a precautionary measure. Whenever little actual precipitation falls, however, the mean level of the Basin (grade 8) must be quickly restored, to prevent damage to foundations and footings in Back Bay and elsewhere and to prevent air from entering cooling water intakes of the Cambridge Electric Company. Sea water is therefore let into the Basin, even though the introduction of salt-water, augmented by intrusions through the locks, has led to a serious exacerbation of fermentation and sludge accumulation.

The BRA has therefore supported the MDC plan for the construction of a new dam in the vicinity of Warren Avenue with efficient locks and high-capacity flood discharge pumps. The proposed pumps should be of sufficient capacity to cope with peak storm flows during actual storm periods and to eliminate the "false alarm" lowerings of the Basin level in advance of storms, which are necessary at present.

The efficient control of the Basin level by the new dam facilities should prevent waters from trapped in the Muddy River by high water in the Basin, relieving the flood hazard to Brookline and Boston. More efficient control will

also improve the feasibility of restoring the entire Muddy River as a fresh-water surface stream. As described in View 4--Transportation, design alternatives exist for the Route 9-Jamaicaway intersection and the Inner Belt-Fenway section construction projects that would make restoration possible.

Debris Clearance

At various points along the Basin and in the North Terminal Area estuary, debris and dilapidated structures blight the shores and streams. It is essential that these be cleared. The current Harbor Debris Study of the Corps of Engineers encompasses the estuary and the Basin. It is recommended that the Corps propose Federal participation in a comprehensive clearance project.

Along the shores of the Basin, especially in the upper sections above B. U. Bridge, protective rip-rap has deteriorated at various points, partly because of powerboat wake erosion. In other places, exposed shoreline has become severely undercut and large sections of soil, sometimes together with trees, have collapsed into the stream. On some of the sea walls of the Basin, and even along the estuary, masonry has been dislodged. The MDC is urged to plan the rehabilitation of the Basin shoreline and of those estuary sea walls over which it has or will have control.

Water Quality

The Massachusetts Division of Water Pollution Control is presently assigning quality standards to all waters of the Commonwealth, with due consideration to public health, public enjoyment, propagation and protection of fish and wildlife, and economic and social development of the localities concerned.

It is strongly recommended that a Class B designation be assigned to the

Charles River Basin and the Muddy River and that Class A and B designations be assigned to the Charles upstream, in line with the recommendations of the Metropol. Area Planning Council, the Charles River watershed ass.

assigned to the Charles upstream, in line with the recommendations of the Metropolitan Area Planning Council and the Charles River Watershed Association.

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	<i>Designation</i> Staging
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HISTORIC RECOGNITION

National Historic District Designation (National Historic Recreation Landmark District)	City of Boston requests Dept. of Interior to study eligibility.	<u>1968-1969</u> Approximately one year from request to eligibility.
City of Boston	City of Boston	<u>1970</u> Approximately one year from report of Dept. of Interior to decision by City of Boston to accept designation.
Publicizing and preparing celebration of centennial of Boston Parks System.	Metropolitan Area Planning Council Boston Parks Dept. Brookline Parks Dept. B.R.A. Metropolitan District Commission	<u>1968-1975</u> Boston Parks Dept. and B.R.A. should be responsible for most of this work (now to 1975).
Boston Society of Landscape Arch. American Institute of Architects American Institute of Planners	Boston Society of Landscape Arch. American Institute of Architects American Institute of Planners	<u>1970-1975</u> BSLA currently designated as the host chapter for the 1975 ASLA Annual Convention; may be more than willing to publicize preparations for Park Centen- nial.

CHARLES RIVER STUDY IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>URBAN EDGE PROPOSALS</u>		
Scenic Corridor Controls (Plan)	Metropolitan Area Planning Council City of Boston	<p><u>1968-1969</u> Staff in the Planning Dept. of B.R.A. should develop a Stage II of Charles-Muddy Area plan; recommendations to City Council concerning zoning re-districting, new controls, easements, etc.</p> <p>MAPC should coordinate and recommend controls along the river fronts, as proposed in the CR-MR plan, and to develop a comprehensive effectuating plan for communities within the corridor.</p>
Design Advisory Functions	Metropolitan Area Planning Council Independent Design Advisory Committee	<p><u>1968</u></p> <ol style="list-style-type: none"> 1. MAPC to secure legislation authorizing review designs within parkland. 2. Independent Design Advisory Committee to be formed. 3. MAPC to secure legislation authorizing right to review all public and private development proposals along urban edge of corridor.

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>TRANSPORTATION PROPOSALS</u>		
Transportation projects review	Metropolitan Area Planning Council	1968 MAPC to secure legislation authorizing right to review all transportation project proposals abutting park system of Charles and Muddy Rivers.
<u>Jamaicaway Plan Modifications and Construction</u>		
Jamaicaway Plan Modifications and Construction	Metropolitan District Commission	<u>1968-1970</u>
<u>Inner Belt, Fenway Plan Modifications</u>		
Inner Belt, Fenway Plan Modifications	Department of Public Works	To be determined.
<u>Inner Belt Charles Plan Modifications</u>		
Inner Belt Charles Plan Modifications	Department of Public Works	To be determined.
<u>Leverett Circle, City Square, High Bridge Plan Modifications</u>		
Leverett Circle, City Square, High Bridge Plan Modifications	Metropolitan District Commission	To be determined.

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>CONTINUITY OF PARK SYSTEM</u>		
Embankment between Boston University Bridge and River Street Bridge on Boston shore	Metropolitan District Commission	<u>1968-1969</u> Construction: 1. fill, rip-rap 2. trees 3. path, lighting 4. guardrails
Underpass beneath N.Y. Central spur	Metropolitan District Commission	<u>1968-1969</u> Following 1st stage (fill, rip- rap) of embankment between B.U. Bridge and River Street Bridge
Shore path Greenough Blvd.	Metropolitan District Commission	<u>1970</u> Staging following development of Watertown Arsenal Shore
Brighton abattoir shore	Metropolitan District Commission	<u>1968-1970</u> Construction: 1. grading 2. paths 3. trees
Walkway at Memorial Drive Interchange at Longfellow Bridge 1500' length on rim of inter- change	Metropolitan District Commission	<u>1968-1970 °</u>

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>CONTINUITY OF PARK SYSTEM - Cont.</u>		
<i>on Basin Edge</i> Walkway at Science Museum, and Parking Garage, on Basin Edge	Metropolitan District Commission	<u>1972-1975</u>
Improvement of existing paths of Charles River Basin	Metropolitan District Commission	<u>1972-1975</u>
15000 feet with average 4 foot widening		
Boston Bikeway designations	Metropolitan District Commission	<u>1968-1975</u>
Bike rental outlets	Metropolitan District Commission City of Boston	<u>1972-1975</u> late staging, according to demand
10 additional (at least) pedestrian overpasses* from built-up areas to parkland © approximately \$70,000 each	Metropolitan District Commission	<u>1969-1972</u> Coordinated with park develop- ment.

* in addition to those now planned by M.D.C.

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>CONTINUITY OF PARK SYSTEM - Cont.</u>		
Two pedestrian bridges a) over locks, Charles River Dam b) over locks, proposed new dam	Metropolitan District Commission	a) 1969 coordinated with Museum's landscaping of new area. b) with construction of new dam
Two pedestrian overpass ^c cross- ing O'Brien Highway @ \$70,000 each	Metropolitan District Commission	<u>1973-1974</u> Coordinated with completion of embankments of North Terminal Area.
Two underpasses a) under North Beacon Street on Watertown Shore b) under Arsenal Street on Watertown Shore	Metropolitan District Commission	<u>1972-1973</u> Following development of Water- town Arsenal Shore as recreation area.
Grade-crossing signalization improvements	<i>- previous Municipality</i>	Plan and program to be developed.
Improvements to walking environ- ment Sidewalks, etc., on principal route streets (20-22 streets)	B.R.A. (in renewal areas) City of Boston	<u>1969-1975</u>

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>RECREATION ON THE SHORES</u>		
North Terminal Area Waterfront		<u>1968-1970</u>
1. Embankments	City of Boston <i>Metropolitan District Commission</i>	Development of acquisition program to purchase land immediately. City of Boston to pursue waterfront renewal program. Shoreline rehabilitation, obsolete structure clearance (1970-1973) embankment landscaping, paving (1973-1975).
2. Recreation (on inner edge of embankment) facilities skating rink	City of Boston	Can be staged following land acquisition (1970-1973).
3. Small boat marina	Metropolitan District Commission	<u>1973-1975</u>
4. Two launching ramps (one on each shore)	Public Access Board	<u>1971-1972</u> Staged following reconstructed sea wall.
5. Other boating facilities (excursion landing, M.D.C. boathouse, repairs, etc.)	Metropolitan District Commission	<u>1973-1975</u> Staged with boat marina

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>RECREATION ON THE SHORES - Cont.</u>		
Watertown Arsenal Shore 30 acres, 300 feet wide	Metropolitan District Commission Metropolitan Area Planning Council	Acquisition immediately. Negotiations with GSA are currently active. Development can be staged gradually. a) <u>1970</u> - new road (250' from shore) b) <u>1971</u> - outdoor facilities--picnic grounds, landscaping c) <u>1970</u> - removal of Arsenal structures
New picnic areas, Soldiers Field Road; tree planting, sod, benches, tables	Metropolitan District Commission	<u>1969-1971</u>
River bend, north of Eliot Bridge Tree planting	Metropolitan District Commission	<u>1969-1971</u>
Magazine Beach Program	Metropolitan District Commission	Following completion of plans for Inner Belt.
Charlesbank Rehabilitation of fenced off park area	Metropolitan District Commission	1974 Following Museum development of park area on west side of lock.

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
General Beautification - All Areas		
1. Turf, plantings, benches, sanitation, masonry repair, etc.	Metropolitan District Commission City of Boston Brookline <i>Public Department</i>	<u>1968-1975</u>
2. Lighting installation a. Charles River Basin b. Muddy River (Boston) c. Muddy River (Brookline)	<i>Public</i> City of Boston Metropolitan District Commission Brookline <i>Public Department</i>	<u>1968-1975</u>
3. Tree planting a. Charles River Basin b. Fens	Metropolitan District Commission <i>City of Boston</i>	<u>1968-1975</u>
Park Shelters & Buildings		
1. New Structures Charles Basin a) Charlesgate Pavilion "Interpretive displays on significance of river parkland, scenic corridor, 'olmsted's etc.	Metropolitan District Commission	<u>1969-1970</u>
b) Charlesbank Pavilion on site of existing south lock house (if new design is completed)	Metropolitan District Commission	<u>1973-1974</u>

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
Park Shelters & Buildings - Cont.		
c) Soldiers Field Road pavilion on site of former MBAC theater	Metropolitan District Commission	<u>1969-1970</u> Including boat house, and existing I.C.A. gallery.
(New) Jamaica Pond Annex to Pinebank for park offices, bike rentals, etc.	City of Boston (Public Facilities Department)	<u>1970-1972</u> With renovation of Pinebank.
Fens		
a. New field house for playfield to replace existing field house	City of Boston (Public Facilities Department)	<u>1968-1969</u> Early Staging needed to permit later redevelopment of playfield.
b. Chess and checker pavilion	City of Boston (Public Facilities Department)	<u>1974-1975</u>
Altered Structures		
a. Jamaica Pond Pinebanks	City of Boston (Public Facilities Department)	<u>1974-1975</u>

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
Altered Structures - Cont.		
b. <u>Fens</u> Two gate-houses near M.F.A. (H.H. Richardson)	City of Boston (Public Facilities Department)	<u>1974-1975</u>
c. <u>Fens</u> Shelter on Agassiz Road (H.H. Richardson)	City of Boston (Public Facilities Department)	<u>1974-1975</u>
d. VFW Marsh Post American Legion M.D.C. Post (convert both to public park use)	City of Boston (Public Facilities Department)	<u>1974-1975</u>

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
<u>RECREATION ON THE WATER</u>		
Boating Facilities		
1. Relocation of upstream powerboat clubs (2) (voluntary)	Private	<u>1969-1970</u>
2. Conversion of vacated upstream club facilities into rowing boat-houses (contingent)	Metropolitan District Commission	<u>1970-1971</u> After relocation of power boat clubs
3. Two rowing boathouses a. Soldiers Field Road b. Kenmore Square Shore	M.D.C. Community Club Universities pool costs	<u>1969-1970</u> a. Architectural competition, together with pavilion design above and existing I.C.A. gallery. b. Not critical. Decision by universities.
4. Additional slips for upstream power boat club(s) that chose to remain.	Metropolitan District Commission <i>Private</i>	<u>1969-1970</u>
5. New sailing pavilion Kenmore Square Shore for Boston University	Private	<u>1969-1971</u>

CHARLES RIVER STUDY
IMPLEMENTATION OF PLAN PROPOSALS

Project	Interests Involved in Planning & Implementation	Staging
Boating Facilities - Cont.		
6. Boat Landings		
a. excursion dock on Kennedy Memorial Library shore	Metropolitan District Commission	<u>1968-1975</u>
b. excursion dock at Charlesgate pavilion		
c. excursion dock at Soldiers Field Road pavilion		
d. new and improved exist- ing public landings		
7. Boat and fishing dock- house Leverett Pond	<i>Charles River (Leverett Boston Parks Department Recreation Department)</i>	<u>1968-1970</u>

Project	Cost Acquisition Development	Total	Sources of Funds					
			City of Boston		M.D.C.	Dept. Nat. Res.		Federal
			Dept. Rec. Pub. Fac. Pub. Works	Dept. Rec. Pub. Fac. Pub. Works		B.O.R.	P.A.Z.	Title VII U.S.
RECREATION ON THE WATER (continued)								
boat and fishing dock-house everett Pond	-- \$ 25,000	\$ 25,000	\$ 25,000					
TOTALS	\$14,000,000 \$ 9,115,000	\$23,115,000	\$130,000 \$430,000	\$500,000	\$14,510,000	\$500,000	\$400,000	\$5,750,000 \$627,500
								\$267,500

2
 1/10/53
 1/10/53

Project	Cost	Total	Sources of Funds				
			City of Boston	Dept. Mat. Res.	Federal	Title VII	
	Acquisition Development		Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	B.O.R.	P.A.B.	U.B.
							Other
RECREATION ON THE WATER							
version of vacated up- eam club facilities rowing boat houses (stringent)							
rowing boat houses							
(a) Soldiers Field Rd.	-- \$ 120,000	\$ 120,000		\$ 120,000			\$120,000
(b) Kenmore Square Shore	-- \$ 120,000	\$ 120,000					
Additional slips for up- eam power boat club(s) to choose to remain							
sailing pavilion Kenmore Square Shore for Boston University	-- \$ 120,000	\$ 120,000					\$120,000
Landings							
(a) excursion dock on Kennedy Memorial Library shore	-- \$ 150,000	\$ 150,000		\$ 150,000			
(b) excursion dock at (b) Charlestown Pavilion	-- \$ 150,000	\$ 150,000		\$ 150,000			
(c) excursion dock at Soldiers Field Road pavilion	-- \$ 75,000	\$ 75,000		\$ 75,000			
Private costs (universities).							

to be determined

private costs to be determined

Project	Cost		Sources of Funds				
	Acquisition	Total	City of Boston	Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	Debt. Nat. Res.	Federal
	Development		Dept. Rec. Pub. Fac. Pub. Works			E.O.R. P.A.B.	Title VII U.S.
1. New Structures - cont.							
Fens							
(a) new fieldhouse for playfield to replace existing house	-- \$ 100,000	\$ 100,000	\$100,000				
(b) chess and checker pavilion	-- \$ 20,000	\$ 20,000	\$ 20,000				
Altered Structures							
(a) Jamaica Pond Pinebanks	-- \$ 150,000	\$ 150,000	\$150,000				
(b) Fens: two Gate houses near H.F.A. (H.H. Richardson)	-- \$ 20,000	\$ 20,000	\$ 20,000				
(c) Fens: Shelter on Agassiz Road (H.H. Richardson)	-- \$ 10,000	\$ 10,000	\$ 10,000				

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Project	Sources of Funds			Total	Sources of Funds										
	Cost	Acquisition	Development		City of Boston										
					Dept. Rec. Pub. Rec. Pub. Works	M.D.C.	B.O.R.	P.A.B.	Federal Title VII U.B.	Other					
SEWERS & BUILDINGS															
New Structures															
Charles Basin															
(a) Charlesgate															
pavilion "inter- pretive displays on significance of river park- land, scenic corridor, Olmsted, etc.															
														</	

Project	Sources of Funds					
	Cost	Total	City of Boston			Federal
			Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	B.O.R. P.A.B.	Title VII U.B.
1. RECREATION ALL AREAS						
-- Turf, plantings, benches, snailstation, masonry repair, etc	\$ 225,000	\$ 225,000	\$ 50,000	\$ 50,000	\$112,500	\$12,500*
2. Lighting installa- tion						
-- (a) Charles River Basin	\$ 150,000	\$ 150,000		\$ 75,000	\$ 75,000	
-- (b) Muddy River (Boston)	\$ 100,000	\$ 100,000	\$ 50,000		\$ 50,000	
-- (c) Muddy River (Brookline)	\$ 30,000	\$ 30,000			\$ 15,000	\$15,000*
3. Tree planting						
-- (a) Charles River Basin	\$ 120,000	\$ 120,000		\$ 60,000	\$ 60,000	
-- (b) Fens	\$ 60,000	\$ 60,000	\$ 30,000		\$ 30,000	

* Town of Brookline.

Project	Sources of Funds		City of Boston				Federal	
	Acquisition Development	Total	Dept. Rec. Pub. Rec. Pub. Works.		M.D.C.		B.O.R.	
			Dept. Nat. Res.		P.A.B.		Title VII	
								U.S.
CREATION OF THE SHORES (continued)								
testom Arsenal Shore 30 acres, 500' wide)	\$ 4,000,000 \$ 1,000,000 (a)	\$ 5,000,000			\$ 4,500,000 (b)	\$500,000		
w picnic areas Soldiers old Road; tree planting, d, benches, tables	-- \$ 100,000 \$ 100,000				\$ 50,000		\$ 50,000	
ver bend, north of lot Bridge (tree planting)	-- \$ 10,000 \$ 10,000				\$ 5,000		\$ 5,000	
erlebank: Rehabilita- of fenced off park	-- \$ 5,000 \$ 5,000				\$ 2,500		\$ 2,500	

) Negotiations with General Services Administration currently active. Acquisition cost listed above at 50% write-down due to GSA policies on sale of surplus properties.

) \$4 million acquisition plus 1/2 of estimated development costs.

Project	Cost Acquisition Development	Total	Sources of Funds				
			City of Boston		Dept. Nat. Res.		
			Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	B.O.R.	P.A.B.	Federal Title VII U.S.
<u>PROTECTION ON THE SHORES</u> Terminal Area Water- Rebankments (acqui- sition, clearance of obsolete structures, site preparation, shoreline rehabili- tation)	\$10,000,000 \$ 1,000,000	\$11,000,000		\$ 5,500,000			\$5,500,000
Recreation facili- ties on inner edge of embankment (land- scaping, paving, etc.)	-- \$ 1,500,000	\$ 1,500,000		\$ 1,250,000			\$ 250,000
Small boat facility	-- \$ 500,000	\$ 500,000		\$ 500,000			
Two launching ramps (one on each shore)	-- \$ 400,000	\$ 400,000				\$400,000	
Other boating faci- lities (excursion landing, M.D.C. boathouse repairs, etc.)	-- \$ 500,000	\$ 500,000		\$ 500,000			

Project	Cost		Sources of Funds				
	Acquisition Development		Total	City of Boston		Federal	Other
				Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	B.O.R. P.A.B.	Devt. Met. Res.
MINISTRY OF PARK SYSTEM (continued)							
pedestrian overpasses crossing O'Brien Highway. \$70,000 each)	-- \$ 140,000	\$ 140,000	\$ 140,000		\$ 140,000		
c) underpasses:							
a) under North Beacon St. on Watertown Shore							
b) under Arsenal St. on Watertown Shore	-- \$ 200,000	\$ 200,000	\$ 200,000		\$ 200,000		
side-crossing signalization improvements				to be determined			
improvements to walking viaduct (sidewalks, etc. on principal route. fees -- 20-22 streets)	-- \$ 500,000	\$ 500,000	\$ 500,000		\$ 500,000		

Project	Sources of Funds		Total	City of Boston	Sources of Funds			Total
	Cost Acquisition Development	Total			Dept. Nat. Res.			
					Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	B.O.R. P.A.B. Title VII U.E.	
TRINITY OF PARK SYSTEM (continued)								
Improvement of existing banks of Charles River in (15,000' w/ average widening)	-- \$ 30,000 \$	30,000	\$ 15,000				\$ 15,000	
ton bikeway designa- ns	-- \$ 5,000 \$	5,000	\$ 5,000					
e rental outlets, items (4)	--- \$ 60,000 \$	60,000	\$ 30,000					
ist 10 additional currian overpasses* in built-up areas to island (8 approx. ,000 each)	-- \$ 700,000 \$	700,000	\$ 700,000					
edestrian bridges) over lock Charles River Dam;) over locks proposed new dam	-- \$ 70,000 \$	70,000	\$ 70,000					

n addition to those now planned by M.D.C.

Project	Sources of Funds				
	Cost	Total	City of Boston		
			Dept. Rec. Pub. Fac. Pub. Works	M.D.C.	Devt. Nat. Res. B.O.R. P.A.B. Title VII U.B.
UNIVERSITY OF PARK SYSTEM					
Amusement between B.U. age and River St. Bridge Boston Shore (fill, rip- trees, path, lighting, walkways)	-- \$ 100,000	\$ 100,000		\$ 50,000	\$ 50,000
Express beneath N.Y. to obtain Central Spine (fill, rip- trees, path, lighting, walkways)	\$ 60,000	\$ 60,000		\$ 30,000	\$ 30,000
to path to reach Blvd.	-- \$ 10,000	\$ 10,000		\$ 5,000	\$ 5,000
Station abattoir shore ading, paths, trees)	-- \$ 80,000	\$ 80,000		\$ 40,000	\$ 40,000
way at Memorial Drive exchange at Longfellow ice (1500' length on of interchange	-- \$ 100,000	\$ 100,000		\$ 50,000	\$ 50,000
way at Science Museum, ding Garage on Basin	-- \$ 75,000	\$ 75,000		\$ 37,500	\$ 37,500

APPENDIX I--CHARLES RIVER BASIN-MUDDY RIVER PARK INVENTORY

Should be checked by
Phil, (Mancin, Lucille.)

Clark can explain
divergence.

One change needed:

another park-loss area:

Henanham Road width

(future, possible) from

N. Beacon St. to Washington

(California St.).

Clark: Dimensions

& Calculate.

CHARLES RIVER BASIN -- MUDDY RIVER PARK INVENTORY *

I. SUMMARY OF INVENTORY

A. All Existing Parkland, 1967¹

1. Charles River Basin

a.	In Boston	(MDC)	172.6	A
b.	In Cambridge, Newton & Watertown	(MDC)	<u>178.8</u>	
Total			351.4	A

2. Muddy River

a.	In Boston	(City Title)	228.8	A
b.	In Brookline	(Town Title)	<u> </u>	
Total				

Grand Total

B. Water Surfaces, 1967

Charles River Basin, Total			662	A
Muddy River, Total			<u>103</u>	
Grand Total			765	A

C. Parkland Not Accessible to the Public for Park Use

1.	Areas made inaccessible by road or other construction	11.6	A
2.	Science Museum and MDC operational facilities	<u>14.2</u>	
Total		25.8	

¹ Totals represent gross area of park and recreation lands, including inaccessible areas, but do not include roads and water bodies.

* Sources: Planimeter measurement of MDC, Boston and Brookline map records; August, 1967.
BRA Report: Public Open Space in the City of Boston, August, 1967.

D. Parkland to be Eliminated by Future Road Construction *

9 Projects, Total

63.5 A

E. Net Accessible Parkland, 1967

All existing parkland, 1967 minus
parkland not accessible to the public for park use

615.

F. Future Net Accessible Parkland

Net accessible parkland, 1967, minus
parkland to be eliminated by future road construction

545.

Expressed in terms of decrease from all existing
parkland, 1967

15%

G. Past Reductions in Parkland Area¹

Transfer of parkland to non-park title

By M. D. C.

56.0 A

By C. o B.

2.9

58.9 A

¹ In the Charles River Basin, from start of operations of M.D.C. in 1921;
in the Muddy River, from development by Boston and Brookline in 1879
and , respectively.

* The estimate of acreage to be lost to construction is the sum of
assumed roadway surfaces and areas that may be
judged unusable or inaccessible because of construction.

II. INVENTORY: EXISTING PARKLAND¹

	<u>Area</u>	<u>Owner</u>	<u>Operating Agent</u>	<u>Size</u>
A. <u>Charles River Basin</u> ¹				
1. In Boston	Brighton	MDC	MDC	104.3 A
	Kenmore Sq.	"	"	14.2
	Back Bay	"	"	29.4
	Beacon Hill	"	"	<u>24.7</u>
			Total	172.6 A
2. In Cambridge, Newton, Watertown			Total	178.8 A
	Charles River Basin, Grand Total			351.4 A
B. <u>Muddy River</u> ¹				
1. In Boston	Back Bay			
	Fens	C.o.B.	P & R Dept.	98.1 A
	Riverway	"	"	24.2
	Olmsted			
	Park	"	"	<u>106.5</u>
			Total	228.8 A
2. In Brookline	Riverway	T.o.B.	P & R Dept.	
	Riverdale			
	Park	"	"	<u> </u>
			Total	
	Muddy River, Grand Total			

¹Exclusive of water surfaces.

III. INVENTORY: WATER SURFACES.

A. Charles River Basin

<u>Water Recreation Zone</u>	<u>Zone Name</u>	<u>Area</u>	
1.	Charles Harbor (proposed new basin)	46	A
2	Charlesbank	65	
3	Back Bay	234	
4	Kenmore Square	134	
5	Allston-Cambridge	154	
6	Brighton-Watertown	<u>75</u>	
	Total	708	A

B. Muddy River and Ponds

Jamaica Pond		63.0	A
Ward's Pond		2.2	
Leverett Pond		10.7	
Muddy River			
Riverway	8.0		
Fens, Neck	1.0		
Fens, South	8.7		
Fens, North	5.4		
Charlesgate	<u>1.8</u>		
		<u>24.9</u>	
	Total	100.8	A

IV. INVENTORY: PARK AREA LOSSES

A. Parkland Not Accessible to the Public for Park Use

1. Areas Made Inaccessible by Road or Other Construction

<u>Description</u>	<u>Area</u>
Soldiers Field Road shore, at Turnpike	3.0 Acres
Memorial Drive, E. of B.U. Bridge	1.4
Charlesgate, N. of Beacon St.	3.4
Fens Neck; E. of Brookline Ave., Island W. of Sears	1.2
Jamaicaway, N. and S. of Huntington Ave. overpass	<u>2.6</u>
Total	11.6 Acres

2. Science Museum and MDC Operational Facilities

<u>Description</u>	<u>Area</u>
1. Science Museum, Charles River Dam	7.0 Acres (a)
2. MDC Lower Division facilities, Charles River Dam	2.7 (b)
3. MDC maintenance yard, N. of Arsenal Bridge	3.0 (c)
4. MDC-proposed sewage holding facility, Magazine Beach	<u>1.5</u> (d)
Total	14.2 Acres

(a) Includes 0.7 acre park planned by Museum.

(b) Includes lock facilities, police division, police boathouse, maintenance buildings and parking.

(c) On open shore land.

(d) Superstructure and parking area only.

B. Parkland to be Eliminated by Future Highway Construction

<u>Description</u>	<u>Area</u>
1. Greenough Boulevard widening and N. Beacon Br. Underpass (widening to 70')	9.4 Acres (a)
2. Charles River Road (Arsenal) widening and Arsenal Br. underpass (widening to 70')	6.0 (a)
3. Soldiers' Field Road extension to N. Beacon Br. and N. Beacon Br. underpass (6.51 acre)	14.2 (a)
4. Soldiers' Field Road widening and Arsenal Bridge underpass	5.5 (b)
5. Inner Belt - Turnpike Connector (via Magazine Beach and the Charles)	9.1 (c)
6. Inner Belt-Fenway (exposed cut between Brookline Ave. and Beacon St.)	2.3 (c)
7. Leverett Circle-City Square Bridge (South embankment)	2.5 (d)
8. Leverett Circle-City Square Bridge (North embankment)	4.5 (d)
9. Jamaicaaway-MDC 1966 scheme	7.0 (e)
	<hr/> 60.5 Acres

- estimated*
- (a) Figures assumed on the basis of project descriptions by MDC officials. Projects presently under tentative consideration only, by MDC.
- (b) Construction drawings contracted by MDC, summer 1967
- (c) Mass. Department of Public Works project
- (d) Mass. Port Authority - MDC project. Figures given are estimates of potential embankment area under MPA-MDC scheme.
- (e) MDC project

C. Transfer of Parkland to Non-Park Title*

<u>Description</u>	<u>Area</u>
Sears (parking lot)	1.9 Acres
Boston Fire Department (Fens)	<u>1.0</u>
Total, Muddy River (C. o B.)	2.9 Acres
Boston and Albany R.R.	6.7
Boston University	4.7
City of Cambridge (Morse School, at Magazine Beach)	4.9
Perkins Institute	.8
Near Bachrach	.8
City of Watertown (At Watertown Bridge)	4.0
City of Boston (End of Brook Street, at North Beacon Bridge)	.8
Watertown Arsenal, (at Arsenal Bridge)	14.4
Private owners (on Soldiers' Field Road, opposite MBAC)	1.8
Harvard University (Newell Boat Club)	2.8
Harvard University (on Soldiers' Field Road, at Anderson Bridge)	.2
Harvard University (Harvard Business School)	9.3
Mt. Auburn Hospital	1.3
Cambridge Cemetery	<u>3.5</u>
Total, Charles River (MDC)	56.0 Acres
TOTAL	58.9 Acres

Private Ownership in Charles - 44.1 Acres

*Areas of less than 0.1 acres not included

V. PROPOSED PARK ADDITIONS

A. Parkland to be recovered from inaccessible condition

<u>Description</u>	<u>Remarks</u>	<u>Area</u>
1. Jamaicaway-Huntington Ave. intersection	isolated areas, to be merged with continuous river, park, path restoration	2.6 Acres
2. At Brookline Ave., on Fens Neck	as in 1	1.2
3. Charlesgate, N. of Beacon St.	isolated area, to be traversed with proposed path and overpass connector to Charles Embankment	3.4
4. Memorial Drive Shore, E. of B.U. Bridge	isolated area, to be recovered with construction of Inner Belt river crossing	1.4
5. Soldiers' Field Road Shore, at Turnpike	isolated shore, to be widened 5' and linked into Basin circuit	3.0
Total		11.6 Acres

B. Parkland to be developed at Science Museum

<u>Description</u>	<u>Remarks</u>	<u>Area</u>
Site at corner of Planetarium and lock	Site to be cleared and landscaped by Museum as part of expansion program of the Museum	0.7 Acres

C. Parkland to be developed, on site of IDC operational facilities

<u>Description</u>	<u>Remarks</u>	<u>Area</u>
1. Site at Southeast corner of lock	Fenced-off area not in use and overgrown with scrub vegetation	0.3 Acres
2. Maintenance yard, Charles River Shore, north of Arsenal Bridge	Land should be developed as park; maintenance equipment recommended for relocation on IDC property not on river edge	3.0 Acres

D. Parkland to be saved from loss to projected highway construction, by elimination or alteration of plans

<u>Description of Project*</u>	<u>Proposed Change</u>	<u>Area saved from loss</u>
1. Greenough Blvd. widening	Cancel	9.4 Acres
2. Charles River Road widening	Cancel	6.0
3. Soldiers' Field Road Extension	Cancel	14.2
4. Soldiers' Field Road widening	Cancel	5.5
5. Inner Belt-Turnpike Connector	Eliminate connector-bridge, replace with ramps on Boston side of main bridge.	9.1
6. Inner Belt-Fenway	Depress tunnel, extend deck and restore river, park and paths on surface.	2.3
7, 8. Leverett Circle-City Square Bridge	Alter alignment to merge with Central Artery spans	7.0 (potential)
9. Jamaicaaway-MDC 1966 Scheme	Eliminate curve-realignments; construct separate south bound span to restore river, park and paths below new Huntington Avenue overpass	

E. Total parkland in park agency title to be recovered for public park use

* Refer to Fig. 6 and appendix

F. Proposed Acquisitions

<u>Description</u>	<u>Agency-Instrument</u>	<u>Area</u>
1. Sears parking lot	DPW-Inner Belt Project	1.9 Acres
2. Watertown Arsenal shore (including edge presently under MDC care and control easement and additional depth to provide an embank- ment of 200' width, ex- clusive of road).	MDC-negotiation	18.0 (parkland only, including 6.0 existing easement)
3. New Basin Embankment		

G. Total Proposed Park Additions

Recovered, in park agency title;
and proposed acquisitions

Total

Future Total Proposed Parkland

Expressed in terms of increase over
net accessible parkland, 1967

APPENDIX II--NUMBER OF PERSONS ENGAGING IN OUTDOOR RECREATION NEAR THEIR HOME

Permission needed
from D.N.R.
for reprinting
their table?

—
Needs no other
preparation.

REGION 5

NUMBER OF PERSONS* ENGAGING IN OUTDOOR RECREATION
NEAR THEIR HOME; 1960, 1970, 2000.

	1960	1970	2000
<u>Primary Outdoor Activities</u>			
Competitive Outdoor Sports	138,000	207,200	414,600
Swimming	113,000	162,800	312,100
Bicycling	47,100	57,400	88,000
Picnicking	37,800	46,700	73,600
Attending Outdoor Sports	34,000	42,800	69,100
Fishing	29,400	33,700	46,800
Boating	22,800	33,000	63,500
Ice Skating	17,900	28,200	59,100
Horseback Riding	16,000	21,200	36,800
Sledding	15,500	21,900	41,200
Hunting	12,000	12,600	14,500
Attending Outdoor Concerts	6,000	8,400	15,600
Water Skiing	5,900	10,000	22,300
Snow Skiing	600	1,300	3,400
<u>Supplementary Outdoor Activities</u>			
Walking ¹	208,200	270,700	458,100
Pleasure Driving	200,500	257,700	429,100
Sightseeing	62,200	84,000	149,300
TOTAL	966,900	1,299,600	2,297,100

* Number of persons at one time on an average weekend day in the peak season for each activity. ¹ includes hiking and climbing.

REGION 5

NUMBER OF PERSONS* ENGAGING IN OUTDOOR RECREATION
NEAR THEIR HOME; 1960, 1970, 2000.

	1960	1970	2000
<u>Primary Outdoor Activities</u>			
Competitive Outdoor Sports	3) 138,000	3) 207,200	3) 414,600
Swimming	4) 113,000	4) 162,800	4) 312,100
Bicycling	6) 47,100	6) 57,400	6) 88,000
Picnicking	7) 37,800	7) 46,700	7) 73,600
Attending Outdoor Sports	8) 34,000	8) 42,800	8) 69,100
Fishing	9) 29,400	9) 33,700	11) 46,800
Boating	10) 22,800	10) 33,000	9) 63,500
Ice Skating	11) 17,900	11) 28,200	10) 59,100
Horseback Riding	12) 16,000	12) 21,200	12) 36,800
Sledding	13) 15,500	12) 21,900	12) 41,200
Hunting	14) 12,000	14) 12,600	15) 14,500
Attending Outdoor Concerts	15) 6,000	16) 8,400	15) 15,600
Water Skiing	16) 5,900	15) 10,000	14) 22,300
Snow Skiing	17) 600	17) 1,300	17) 3,400
<u>Supplementary Outdoor Activities</u>			
Walking ¹	1) 208,200	1) 270,700	1) 458,100
Pleasure Driving	2) 200,500	2) 257,700	2) 429,100
Sightseeing	5) 62,200	5) 84,000	3) 149,300
TOTAL	966,900	1,299,600	2,297,100

* Number of persons at one time on an average weekend day in the peak season for each activity. ¹ includes hiking and climbing.

APPENDIX III--CHARLES RIVER BASIN AND JAMAICA POND BOATING

Already
checked through
p. 12b.

Other figures
~~Also~~ need checking?
(totals correct?)

Some parts need clearer
wording

Explicit explanations
needed for methods of
estimation of capacities,
etc.

TABLE II

CHARLES RIVER BASIN AND JAMAICA POND BOATING

NAME AND LOCATION OF FACILITY	BOAT TYPES	NO. OF BOATS		ESTIMATED NO. OF BOATS IN PEAK-HOUR USE		ESTIMATED NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE
		1959	1967	1959	1967	1959	1967	
<u>Boat Houses (Rowing)</u>								
Belmont Hill School boat-house	Sculls	1	1	5	9	22	44	Boston University Bridge to Arsenal Street Bridge
Gerry's Landing Cambridge	Lightweight Shells Launches	7 2	17 4					
Browne & Nichols School ^{Boathouse} Boat-house	Lightweight Shells	11	8	8	10	46	60	Harvard bridge to Arsenal Street Bridge
Gerry's Landing Cambridge	Launches	3	5					
Cambridge Boat Club	Sculls	26	22	6	12	6	12	Charles River Dam to Watertown
Gerry's Landing Cambridge	Launches							
Newell Boat House (Harvard)	Heavyweight Shells	56	26	20	12	185	112	Boston University Bridge to Arsenal Street Bridge
Harvard Rowing Society Drive Brighton	Launches	5	6					
Wald Boat House	Sculls	60	66	50	50	180	180	Boston University Bridge to Arsenal Street Bridge
Memorial Drive by Long Anderson Bridge Cambridge	Heavyweight Shells) Launches	1	15 1					
Riverside Boat Club	Sculls	48	29	15	20	24	30	Boston University Bridge to Arsenal Street Bridge
769 Memorial Drive Cambridge	Lightweight Shells Launches	1	2 1					
Northeastern Rowing	Sculls		6		6		55	Spring: Lower basin Fall: Upper basin
Riverside Boat Club	Lightweight Shells		1					
769 Memorial Drive Cambridge	Heavyweight Shells Launches		8 3					

NAME AND LOCATION OF FACILITY	BOAT TYPES	ESTIMATED NO. OF BOATS IN PEAK-HOUR USE		ESTIMATED NO. OF BOATS IN PEAK-HOUR USE		PRINCIPAL AREA OF USE
		1959	1967	1959	1967	

Boat Houses (Cont'd)

Boston University Rowing Old M.I.T. Boathouse Cambridge	Lightweight Shells Heavyweight Shells Launches	8 2 3	1 9 3	6 6 40	40	Charles River Dam to Arsenal Street Bridge
M. I. T. Rowing Pierce Boathouse 409 Memorial Drive Cambridge	Sculls Lightweight Shells Heavyweight Shells Launches	5 1 14 3	11 3 21 3	13 22 90	150	Charles River Dam to Watertown Dam
Union Boat Club 75 Embankment Road Boston	Sculls Lightweight Shells Heavyweight Shells Launches	57 5 3 1	53 5 4 2	15 20 40	50	From Union Boat Club to Weld Boathouse
Boathouse Jamaica Pond	Rowboats Sailboats	22	22 8	22 8	50 16	Entire Pond (Juniors in summer only)
Boston University Sailing Club B.U. float (downstream East-B.U. Boat-House) Storrs Drive	Sailboats Launches	8 1	9 1	6 7	21	Harvard Bridge to Boston University Bri
M. I. T. Nautical Association Memorial Drive Cambridge	Sailboats Launches	52 1	49 2	27 26	54	52
Boston College Sailing Club M.I.T. Pavilion Memorial Drive Cambridge						Longfellow Bridge to Harvard Bridge

Uses M.I.T. facilities - Active school year only. Membership varies: 15-40/year

ESTIMATED
NO. OF BOATS
IN PEAK-HOUR
USE
1959 1967 1959 1967

ESTIMATED
NO. OF PEAK-
HOUR USERS
1959 1967

PRINCIPAL AREA OF USE

NAME AND LOCATION OF FACILITY BOAT TYPES

Sailing Pavilions (Cont'd)

Harvard University Sailing Club Sailboats
M.I.T. Sailing Pavilion Launches
Memorial Drive
Cambridge

21 21 30
1

Longfellow Bridge to
Harvard Bridge

Emerson College Sailing Club
Float upstream from
Union Boat Club

8 8 22
1

Longfellow Bridge to
Harvard Bridge

Community Boating, Inc.
21 Embankment Road
Boston

35 51 150
4 100
2

Longfellow Bridge to
Harvard Bridge

Yacht Clubs

Newton Yacht Club
Nonantum Road

140 50 240
50 150
2 80
12

Power boats
Outboards
Sailboats
Rowboats

Watertown Yacht Club
North Beacon Street
Watertown

83 50 240
20 160
3 35
25

Power boats
Outboards
Sailboats
Rowboats

Charles River Yacht Club
Memorial Drive
Cambridge

85 45 160
78 300
40 160

Power boats
No launch (each
boat with dinghy)

NAME AND LOCATION OF FACILITY	BOAT TYPES	NO. OF BOATS IN PEAK-HOUR USE		NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE		
		1959	1967	1959	1967			
<u>Yacht Clubs (Cont'd)</u>								
Charlesgate Yacht Club Cambridge Parkway Cambridge	Powerboats	68	60	50	45	200	180	Boston Harbor, coastal waters
<u>Launching Areas</u>								
Nonantum Road Launching Area Nonantum Road Brighton	Outboards	-	*	-	*	-	*	Boston Harbor
Magazine Beach Launching Area Memorial Drive Cambridge	Outboards	-	*	-	*	-	*	Boston Harbor

* Figures not available; figures for Charles River
Dam small boat lock passages averaged 14,000 annually
1960-1966.

NO. OF BOATS IN PEAK-HOUR USE		NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE
1959	1967	1959	1967	

Totals, by type, Charles River

Rowing (all types)	302	345	138	171	633	733
Sailboats	95	147	68	113	172	275
Powerboats (all types)	398	311	92	144	368	175

Totals, by type, Jamaica Pond

Rowing	22	22	22	22	50	50
Sailing	0	8	0	8	0	16

Totals, by Area Zones

1	0	0	0	0	0	0	New Basin
2	68	60	8	5	20	20	Charles River Dam to Longfellow Bridge
3	241	249	161	173	206	316	Longfellow Bridge to Harvard Bridge
4	42	61	31	38	160	223	Harvard Bridge to Cottage Farm Bridge
5	221	221	116	125	487	517	Cottage Farm Bridge to Arsenal Street Bridge
6	223	212	6	3	12	12	Arsenal Street Bridge to Watertown Dam
7	22	30	22	30	50	66	Jamaica Pond

TABLE III

- Surface Areas -
Charles River Basin Boating Zones and Capacities

<u>Limits</u>	<u>Water Area</u>
Warren Ave. Dam to Charles River Dam	46 acres
Charles River Dam to Longfellow Bridge	65 acres
Longfellow Bridge to Harvard Bridge	234 acres
Harvard Bridge to Cottage Farm Bridge	134 acres
Cottage Farm Bridge to Arsenal St. Bridge	154 acres
Arsenal St. Bridge to Watertown Bridge	75 acres
	<hr/> 708 acres

(MORE)

TABLE III (con't)

Charles River Basin Boating Zones and Capacities

<u>1967 Boat Totals, Priority Types</u>	<u>Unused Boating Capacity*</u>	<u>Remarks</u>	<u>1967 Boat Totals, All Types</u>	<u>Proposed Total All Types</u>
-(PB)	300 Small boats	After improvements: 200 small boats proposed	-----	200
60(PB)	190 Yachts	With relocated 100 boats from Newton and Watertown Yacht Clubs there will be room for 90 additional yachts	60	250
129(S)	-----	Presently sailing at capacity	249	249
9(S)	65 Sailboats	70 Sailboat pavilion proposed at Deerfield, West of Charlesgate	61	122
200(R)	40 Rowing	40-boat boathouse proposed at Sherborn, B. U. Shore	221	261
100(PB)	120 Rowing	3-40 boat boathouses proposed; relocation of yacht clubs	212	120
	<u>715 Boats</u>		<u>803</u>	<u>1202</u>

* Capacity calculated for:

Yachts: on basis of 10 yachts/acre berths and 25 acre allocated ship area
 Sailboats: on basis of 129 sailboats in 234 acres water of Zone 3
 Rowing: on basis of 200 boats (+20% increase following relocation of yachts and outboards) in 154 acres of Zone 5.
 Small-boat Marina: on basis of 75 small boats/acre

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The Boston Regional Survey: Highways, Prepared for the Mass Transportation Commission, Commonwealth of Massachusetts, by the Planning Services Group, November, 1962

Report of the Committee on the Charles River Dam, appointed under the Resolves of 1901, Chapter 105, Boston, Wright and Potter, 1903

Both should be run through Ann Wolpert for form.

All titles need underlining, and the pages need to be evened up.

PROBLEMS

Throughout the report I have revised the order of material somewhat to achieve a general form of Introductory Justification, Problems, Policies, and Recommendations.

In the most obvious places I made clear the difference between the Fens and the Muddy, but I did not clarify every reference.

FOREWORD

Roy's material has been substantially revised to comply with John's suggestions that the context of the Corps's work be clearly stated and that material about the jurisdictions affected and the assistance rendered be separated.

CHAPTER I--THE SCENIC CORRIDOR TODAY

Material has been added on page 2 that describes the lack of connection between the Fens and the Muddy.

CHAPTER III--SEVEN VIEWS OF THE RIVER LANDSCAPE

View 2--Continuity of the River Parkland

The Fenway Neck paragraph on page 32 is based on the Inner Belt solution worked out last week and not on Roy's material. I think it would be wise to expand the section further to justify the simulated joining of the Muddy and Fens and to describe whatever specific solution Don Brown works out.

In discussing the Arsenal and the Town of Watertown (pages 37 and 38), Roy's draft implied that there had been no direct conversation with the Town. I'm sure there should be, and I think it might also be wise to check with Barnett Berliner and see how his proposal for the area across Arsenal Street fits in with Roy's.

The material about the North Terminal Area on pages 38 to 43 should reflect more fully the very considerable amount of work that has been done by Urban Design and Transportation to work out an alternative traffic scheme.

On page 39 there is a reference to "a reconstructed Warren Avenue Dam." I'm not clear what Roy had in mind.

On the same page the reference to Millers River should be checked out-- I recall that John Blackwell said that it is being filled.

View 3--The Urban Edge

The citation on page 56 should be checked.

The Potomac and Hudson proposals described on page 57 are sufficiently revolutionary that each should be described in greater depth and with greater clarity. The word "jurisdiction" should be defined, for example. The question of means to these vast ends comes immediately to the reader's mind and should be dealt with.

View 4--Transportation

To emphasize the need for policy formulation, I have put Roy's discussion of it at the beginning, but it may be advisable to be even stronger.

To make clear the difference between the expressway system and the MDC parkways, I have divided the two, labeled them, and discussed them separately.

Roy's material about depressing the Inner Belt has not been revised to reflect current policy, but page 66 needs rewriting to describe the new ramp scheme that Will Noonan has worked out.

Pages 67 and 68 should be rewritten to make a strong statement defending the Partan-Salvucci transportation solution after it has had all its in-shop reviews and approvals.

With regard to changes to Storrow Drive, Will Noonan says new interchange ramps at Charles Circle should be constructed in any event. (page 68)

With regard to "local needs as expressed by Boston and Brookline" (page 72), Will tells me that Brookline has since backed off.

View 5--Recreation on the Shores

Roy did not finish this chapter. There was to have been a section detailing appropriate treatment for each of 58 subsections. Because that material is not written, I have also omitted the page that introduces it.

The comparison of population statistics on page 76 doesn't work: the comparison is between the city in 1876 and the SMSA in 1965 and 2000.

View 6--Recreation on the Rivers

I have shortened the last section--Other Activities on the Charles and the Muddy (pages 91 and 92). I omitted reference to continuity of the Muddy into the Fens and edited out some material about fishing that seemed to me to be inappropriately detailed.

CHAPTER IV--PLAN PROPOSALS ALONG THE RIVERS

The single pages introducing each map have not been written, but the maps are substantially complete.

PROBLEMS

View 7--Pollution

John Blackwell gave Roy's draft very careful review and made a number of suggestions. I sent the marked-up copy to Roy who did not agree with most of the suggested changes. I have therefore typed up the draft as Roy last approved it and listed below the comments Blackwell made and Roy's responses to them. I've marked and numbered the text, and the numbers below correspond to those numbers.

1. Blackwell suggested changing "are inseparable" to "have causes in common."

Roy--"Say 'inseparable.' 'Causes in common' is equivocal. Sounds heavy, too."

(If the operable word is "problems," Blackwell is right, but the issue is a minor one.)

2. Blackwell suggested changing the sentence to read "Pollution abatement in the Charles will not succeed without improvements in the means by which Roxbury and Brookline drain into the Muddy River and Stony Brook."

Roy--"Your change seems to suggest justification of continuing existing systems. Why drop the key words 'coordinated' and 'controls'?"

(Again, Blackwell is more precise, but the issue is minor. Dave Rundle pointed out, however, that a reference in the minutes of the Sept. 26 Coordinating Committee meeting --page C-3--indicates that Brookline plans to increase its discharge into the Muddy.)

3. Blackwell--"Moreover, there is no single measure or combination of measures that can be expected to restore the waters of the very urban Charles and Muddy Rivers to the quality they possessed before urban settlement."

Roy--"Your suggested change sounds like an apologia for agencies and towns--like Brookline--that don't want to be bothered with improving quality. Since 'the quality they once possessed' is perfectly correct, please leave my wording in. (We're not saying '... possessed before the coming of man')."

(It's a matter of precision again, but also seems to reflect an issue about the standard for water quality.)

4. Blackwell--"discharges of untreated sewage."

("Of pollutants" would work better, given the wide variety of problems talked about in the following section. Some qualification would be wise, however; direct discharge of, for instance, reservoir water isn't a polluting factor.)

5. The draft Blackwell had said "flood control" here. He said that flood control has nothing to do with pollution.

Roy--"Did you write this note before you read page 99? I think you might add 'improvement' to the heading here, and leave the first paragraph in on page 99. (See my notes there.)"

(I feel that the heading is unclear. As regards the later discussion, my investigation seems to back up Blackwell. (See below, number 14.)

6. Blackwell advised serapping the paragraph and writing another that expressed support for the efforts that are being made now to do what Roy recommends. He says the separaters are in and working. He also remarked that, technically, oil is littering, not pollution.

Roy--"With regard to oil being littering, I think the public understands 'polluting.' Isn't 'littering' a bit too fancy?

"With regard to separators in and working, are you sure? Then where does the inch-thick coating of oil on the Lower Basin shores come from? 'Should seek continuing enforcement' is probably a good way to state the case, but it should be stated. Please leave the paragraph in."

7. Blackwell says "are being."

Roy--"How do you know they are being thoroughly investigated? Why shouldn't we use the word 'should'? As a matter of fact (information from Dan MacComber of the Corps, biologist in charge of these things), ecology was not being thoroughly investigated. Remember, you have an obligation to Boston which means you have a perfect right to prod the 'ageneies.' That's the essence of 'recommendation.'"

8. Blackwell recommended deleting this paragraph because relocation of the Boston Marginal Conduit and the Cambridge sewers and the filling of Millers River is now being worked on. He says there is a problem of pollution of the Harbor, however, and a possibility that the Feds will cease permitting the solution of one problem to exaeerbate another. He suggested that a statement should address itself to what will be done with wastes now at Leverett, like "They will go to Warren, but should if possible be handled in some other way."

Roy--"Do not delete this paragraph. I don't care who told you 'the problem' is now being worked on. Both Maguire and MDC have neglected to spell out the need for relocation (probably to thin out their extra appropriation request to the Legislature), and it is our obligation to word our observation in such a way that they will not forget it in the future! You don't need to go into detail about the problem of relocating waste to Warren. The paragraph as drafted sums the whole picture up."

9. Blackwell sent material he felt was relevant to these paragraphs. Consideration should be given to any changes that material might make advisable. (It is attached.)

10. Blackwell suggested "partly the result" instead of "the direct result," because the entire watershed is pretty flat and the drainage area is not all that big, so the flow has never been very great.

Roy--"'Direct result' is absolutely right. The language of this report is become rapidly equivocal."

11. Blackwell stated that it is Cochituate and not Quabbin Reservoir that the MDC is authorized to use. He recommended omitting the paragraph.

12. Blackwell--"Doesn't really alleviate pollution."

Roy--"Then why are they building them? The key phrase is 'help alleviate.' We don't know if they will be very effective, but that is the objective. It is also necessary to say 'suitable locations' as a control over possible selection of unsuitable areas for reservoir construction."

13. Blackwell says that storing run-off wouldn't work because the drainage area for Jamaica Pond is only one square mile. The water apparently comes from below, almost like a fountain.

Roy--"But describe anyway the concept of introducing reservoir water into Jamaica Pond, from which it would be released to the Muddy with a possible waterfall to Ward's in spring at least. Do not mention the waterfall."

14. Blackwell recommended checking the facts further before including this paragraph. He said that his understanding was that the MDC does not lower the Basin in advance of storms to the extent that salt water must later be admitted, and further that some salt water has always flowed into the Basin at high tide because of improper operation of the sluice gates. He said the problem arises from the entrapment, not the presence, of salt water and the answer therefore lies in reshaping the bottom. I called Tom Mooney of the MDC who operated the dam, and he corroborated Blackwell's statement--salt water is not admitted to the Basin in order to raise the level.

Roy--"My information for the paragraph is based on statements, by Max Straw, Jim Ayres's series, and, I believe, the explanation of Charles pollution by what's-his-name in the 1938 number of Boston Society of Civil Engineers Journal (now in the Planning Library). Tom Mooney may be wrong, or shy."

"With regard to reshaping of the bottom to avoid entrapment of salt water, whose idea is this? Do not include this in our report."

15. On the basis described at length in my letters of December 21 and January 12, Blackwell suggested omitting this paragraph.

Roy--"Refer to my January 3 letter. We do want a fresh water surface stream. And it's feasible. It's what the whole report is about."

16. Blackwell suggested something like "The debris study report may find that Federal participation is desirable."

Roy--"Who are you doing favors for? Leave this in as a recommendation."

Blackwell also said that the Debris Study does not include the Basin.

Roy--" I phoned John Lind to find out the limits of the debris study. As I remember, he said that the limits were flexible and agreed that we might try recommending (my recollection). The Corps can always refuse, you know. In any case, the Corps is not obliged to pay for clearance, so it has freedom to make recommendations."

17. Blackwell told me that the river classification had been set and suggested I call Tom McMahon's office to find out what had been decided for the Basin. I was told that the chart shows it to be C and D now and C in the future.

Roy--"Lovely. We still will recommend B."



